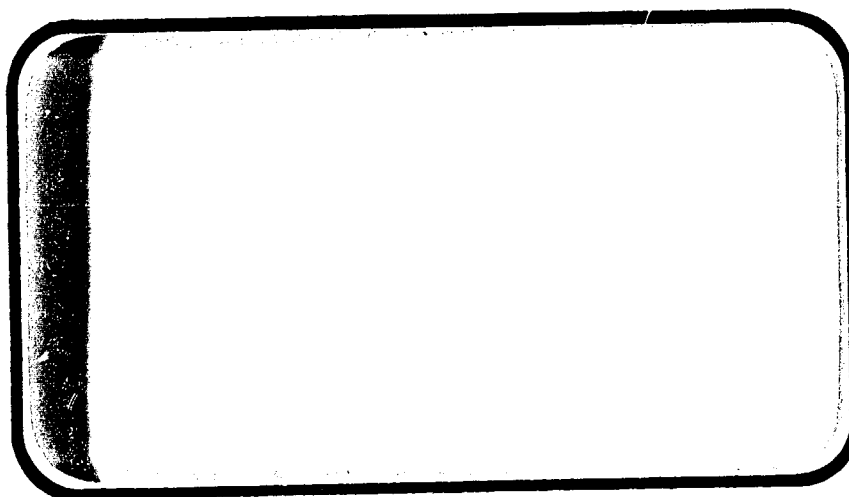


NASA

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION



(NASA-CR-134101) HEAT TRANSFER TESTS OF
AN 0.006-SCALE THIN SKIN SPACE SHUTTLE
THERMOCOUPLE MODEL (41-0) IN THE LANGLEY
RESEARCH CENTER VARIABLE DENSITY (Chrysler
Corp.) 243 p HC \$15.25

N74-33321

Unclas
CSCL 22B G3/31 48544

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT



JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANAGEMENT services

SPACE DIVISION

CHRYSLER
CORPORATION

August, 1974

DMS-DR-2096
NASA CR-134,101

HEAT TRANSFER TESTS OF AN 0.006-SCALE THIN SKIN
SPACE SHUTTLE THERMOCOUPLE MODEL (41-0) IN THE
LANGLEY RESEARCH CENTER VARIABLE DENSITY
TUNNEL AT $M = 8$ (OH13)

by

D. G. Walstad
Rockwell International

Prepared under NASA Contract No. NAS9-13247

by

Data Management Services
Chrysler Corporation Space Division
New Orleans, La. 70189

for

Engineering Analysis Division
Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL SPECIFICS:

Test Number: LaRC/VDT 644
NASA Series No: OH-13
Model Number: 41-0
Date: 13 June 1973
Occupancy: 8 Hours

FACILITY COORDINATOR:

David R. Stone
Mail Stop 163A
Langley Research Center
Langley Station
Hampton, Virginia 23665

Phone: (804) 827-2483

PROJECT ENGINEERS:

D. G. Walstad
Rockwell International
Space Division
12214 Lakewood Blvd.
Mail Code AC07
Downey, California 90241

Phone: (213) 922-4600

P. Lawing
NASA
Langley Research Center
Bldg. 1247A
Langley Station
Hampton, Virginia 23665

Phone: (804) 827-3294

DATA MANAGEMENT SERVICES:

This document has been prepared by:

for D. A. Sarver/M. J. Lanfranco
Liaison Operations

B. W. Myers
Data Operations

W. A. Morgan

B. W. Myers *ajb*

This document has been reviewed and is approved for release:

for N. D. Kemp
Data Management Services

N. D. Kemp

Chrysler Corporation Space Division assumes no responsibility for the data presented other than display characteristics.

HEAT TRANSFER TESTS OF AN 0.006-SCALE THIN SKIN
SPACE SHUTTLE THERMOCOUPLE MODEL (41-0) IN THE
LANGLEY RESEARCH CENTER
VARIABLE DENSITY TUNNEL AT $M = 8$ (OH13)

by

D. G. Walstad, Rockwell International

ABSTRACT

This report presents data obtained from heat transfer tests on an 0.006-scale, Space Shuttle Orbiter Vehicle in the Langley Research Center, Variable Density, Mach 8 Wind Tunnel. The purpose of this test was to obtain orbiter entry heating distributions and to correlate phase change paint data with thermocouple data. The orbiter was tested at 0, 30, and 35 degrees angle of attack at Reynolds numbers of 1, 2, 3, 4, and 6 million per foot. Temperature data were obtained from a total of 57 thermocouples.

(THIS PAGE INTENTIONALLY LEFT BLANK)

TABLE OF CONTENTS

	Page
ABSTRACT	iii
INDEX OF MODEL FIGURES	2
INDEX OF DATA FIGURES	3
NOMENCLATURE	4
CONFIGURATION INVESTIGATED	7
MODEL INSTRUMENTATION	8
TEST FACILITY DESCRIPTION	8
TEST PROCEDURES	9
DATA REDUCTION	10
TABLES	
I. TEST CONDITIONS	12
II. DATA SET/RUN NUMBER COLLATION SUMMARY	13
III. MODEL DIMENSIONAL DATA	14
IV. ORBITER THERMOCOUPLE LOCATIONS	21
FIGURES	
MODEL	22
DATA	25
APPENDIX	
TABULATED SOURCE DATA	

INDEX OF MODEL FIGURES

Figure	Title	Page
1.	General model arrangement.	22
2.	41-OTS 0.006-scale orbiter T/C locations.	23
3.	Specific heat curve.	24

INDEX OF DATA FIGURES

TITLE	COEFFICIENT SCHEDULE	VARYING PARAMETER	PAGE NUMBERS
Heat Transfer Coefficient Ratios on Orbiter Body	A	Y(BP), ALPHA, RN/L, HAW/HT	1-62
Heat Transfer Coefficient Ratios on Orbiter Wing	B	2Y/B, ALPHA, RN/L, HAW/HT	63-140

COEFFICIENT SCHEDULE:

A: H/HO VS. X/L

B: H/HO VS. X/C

NOMENCLATURE

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
b	-	Model skin thickness, inches
b/2	-	Percent span, wing
c	-	Specific heat of model material, BTU/lbm-°R
C _p	-	Specific heat at constant pressure of airstream, BTU/lbm-°R
g	-	Gravitational constant, ft/sec ²
h	H	Heat-transfer coefficient, BTU/ft ² -sec-°R
h _{ref}	HO	Reference heat transfer coefficient, BTU/ft ² -sec-°R
H	-	Enthalpy, BTU/lb
H _o	-	Stagnation enthalpy, BTU/lb
H _{aw}	-	Adiabatic wall enthalpy, BTU/lb
H _w	-	Model wall enthalpy, BTU/lb
k	-	Thermal conductivity coefficient, BTU/ft-sec-°R
M	MACH	Mach Number
ORB	ORB	Orbiter
P	-	Static pressure, psia
P _o	-	Stagnation pressure, psia
P _∞	-	Tunnel free stream pressure, psia
\dot{q}	-	Heat flux, BTU/ft ² -sec
\dot{q}_{ot}	-	Stagnation-point heat-transfer rate calculated using Fay and Riddell's equation, BTU/ft ² -sec.
R	-	Gas constant, Ft-lb/slug-°R
r	HAW/HT	Adiabatic wall temperature ratio, T _{AW} /T _o
R _e	-	Reynolds Number
R _N /l	RN/L	Unit Reynolds number, per foot

NOMENCLATURE (Continued)

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
r_s	-	Radius of scaled one-foot sphere, inches
T	-	Temperature, °R
T_o	-	Stagnation temperature, °R
T_w	-	Model wall temperature, °R
t	-	Time, sec.
u	-	Velocity, ft/sec
W	-	Density of model material, Lbw/ft ³
x	-	Longitudinal distance coordinate, feet
α	ALPHA	Model angle of attack, deg.
μ	-	Viscosity of air
ρ	-	Density of air

Subscripts

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
aw	-	Adiabatic wall
∞		Tunnel free stream conditions
o	O	Tunnel stagnation conditions
w		Model wall conditions

Superscripts

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
'	-	Conditions behind shock

NOMENCLATURE (Concluded)

ADDITIONS TO STANDARD NOMENCLATURE

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Description</u>
h/h_{ref}	H/HO	ratio of local heat transfer coefficient to reference heat transfer coefficient.
X/L	X/L	longitudinal position expressed as ratio of distance from orbiter nose to actual orbiter length.
X/C	X/C	chordwise position expressed as ratio of distance from leading edge to chord length.
Y(BP)	Y(BP)	distance from orbiter centerline in outboard direction.
2Y/B	2Y/B	spanwise position expressed as ratio of distance from fuselage centerline in the outboard direction to one half the span length.
β	BETA	angle of sideslip, degrees.
δ_e	ELEVON	surface deflection angle, positive deflection trailing edge down; degrees.
δ_r	RUDDER	rudder deflection angle, degrees.

CONFIGURATION INVESTIGATED

The orbiter was an 0.006-scale representation of the modified VL70-000089B lines. The main body lines were defined by Grumman drawing SS-H-00326-11 and the nose was defined by Drawing SS-H-00326-15. The orbiter was constructed of Grumman material "G" (Stycast) with thin skin, 15-5 PH stainless steel inserts. The inserts were located on underside centerline region, left-hand wing underside and left-hand windshield. Thermocouples were spot welded to the skin and clamped in bundles at convenient locations within the model. The model had no provisions for elevon, rudder, or body flap deflections.

The model configuration consisted of the following components:

<u>Components</u>	<u>Description</u>
B ₁₀	Fuselage per -89B lines, 2A configuration
C ₅	Orbiter canopy used on fuselage B ₁₀
D ₇	Manipulator housing per -93 lines, 2A configuration
F ₄	Aft body flap used on fuselage B ₁₀
M ₃	OMS Pods per -94A lines, 2A configuration
V ₅	Centerline vertical tail, double wedge airfoil with rounded leading edges
W ₈₇	Wing per -93 lines. Used on fuselage B ₁₀

Table III and Figure 1 provide a detailed description of the model components.

MODEL INSTRUMENTATION

The orbiter was instrumented with 57 iron-constantan thermocouples spot welded to thin skin (nominally 0.030-inch) 15-5 PH stainless steel inserts. The leads were 50 feet in length and were connected to 18 pin connectors. The exact location of each thermocouple is presented in Table IV and illustrated in Figure 2.

TEST FACILITY DESCRIPTION

The Langley Mach 8.0 Variable-Density Hypersonic tunnel is located in Building 1247D and is under the direction of the Aerophysics Division. This tunnel is used for fundamental aerodynamic and fluid dynamic investigation over large Reynolds Number ranges obtaining pressure and heat transfer measurements. The test medium is air and is heated by a combination of dowtherm and electrical resistance heaters. The models are sting mounted with injection from the bottom of the test section after flow has been established. The tunnel has an axially symmetric contoured nozzle. The tunnel cross section is 18 inches in diameter with a core of 4 to 14 inches depending on pressure.

Examples of operating conditions are as follows:

Stagnation pressure (psia)	15 to 2930
Stagnation temperature °(R)	1160 to 1510
Mach Number	7.5 to 8.0
Reynolds Number (1/Ft)	0.1×10^6 to 12.0×10^6
Running time (sec, for Exhaust into vacuum tank Exhaust into Atmosphere	90 600

TEST PROCEDURES

Heat transfer data were obtained by measuring the temperature rise over a period of time from a total of 57 iron-constantan thermocouples. The model was injected into the flow stream from the bottom of the test section and held on tunnel center line for approximately 3 seconds, during which time temperature measurements were taken. Model angle of attack had to be preset manually before securing the test section for testing.

A maximum of 54 thermocouples could be recorded at any given time. Temperature measurements were collected through the Beckman Data Acquisition system. The thermocouple leads were routed through the model support system and connected to a connector panel. Leads that were exposed to flow conditions were wrapped with asbestos tape.

Prior to testing, a thermocouple heat response check, through the data system, was performed on all thermocouples. As an aid in making this check, a fiberglass mask with thermocouple locating holes in it was provided. By placing the tip of a soldering iron to the hole, an accurate and quick response could be obtained.

The model was leveled in pitch and roll by means of a leveling block which attached to the top of the orbiter.

DATA REDUCTION

Heat transfer data were computed using the following equations and procedures:

The thermocouple heat-transfer data were reduced by the one-dimensional thin wall equation:

$$\dot{q} = Wcb \frac{dT_w}{dt}, \text{ Btu/ft}^2\text{-sec}$$

where the symbols are as defined in the Nomenclature section.

The theoretical stagnation-point heat-transfer rate was calculated using Fay and Riddell's equation:

$$\dot{q}_{ot} = 0.94 (\rho_w \mu_w)^{0.5} (\rho_o' \mu_o' / \rho_w \mu_w)^{0.4} (H_o - H_w) (du/dx)^{0.5}$$

where

$$\mu = \frac{0.0232 \times 10^{-6} T^{0.5}}{1 + (220/T)}$$

and

$$\frac{du}{dx} = (1/r_s) [2RT (1 - P_\infty/P_o')]^{0.5}$$

Local heat transfer coefficient for each thermocouple was computed by:

$$h_{local} = \frac{\dot{q}}{r (T_o - T_w)}$$

at $r = 1.0, 0.85$

The ratio of the local heat-transfer coefficient to the reference heat-transfer coefficient was computed by:

DATA REDUCTION (Concluded)

$$\frac{h}{h_{\text{ref}}}$$

where

$$h_{\text{ref}} = \frac{\dot{q}_{\text{ot}}}{rT_o - T_w}$$

at $r = 1.0$

The ratio of the heat-transfer coefficient at adiabatic wall-temperature ratios of $r = 0.85, 1.0$ to the reference heat-transfer coefficients was computed.

TABLE I.

[illegible]

1

I II

DATA SETS REFER TO LOWER WING SURFACE.

TABLE III. - MODEL DIMENSIONAL DATA

MODEL COMPONENT: Body - (B₁₀)GENERAL DESCRIPTION: Fuselage. 2A Configuration lightweight orbiter.per Rockwell lines VL70-000089B. model scale = 0.00593DRAWING NUMBER VL70-000089B
VL70-000092. 93. 94A

<u>DIMENSION:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length in	1328.3	7.87682
Max Width in (@ X ₀ = 1528.3)	265.0	1.57145
Max Depth in (@ X ₀ = 1480.52)	248.0	1.47064
Fineness Ratio	5.012	5.012
Area FT ²		
Max Cross-Sectional	456.4	0.01605
Planform		
Wetted		
Base		

TABLE III. - Continued.

MODEL COMPONENT: Orbiter Canopy (C₅)

GENERAL DESCRIPTION: Orbiter canopy for lightweight Model Scale = 0.00593

DRAWING NUMBER

VL 70 000092

DIMENSION:

FULL SCALE

MODEL SCALE

Sta. fwd bulkhead in.

391.0

2.31863

Sta. TE - in.

560.0

3.32080

Canopy body intersection, in.

391.0

2.31863

TABLE III. - Continued.

MODEL COMPONENT: Manipulator Housing (D₇)

GENERAL DESCRIPTION: 2A configuration per Rockwell lines

VL70-000093 - model scale = 0.00593

DRAWING NUMBER

VL70-000093, SS-A-00092

DIMENSION:

FULL SCALE

MODEL SCALE

Length - in

881.0

5.22433

Max Width - in.

51.0

0.30243

Max Depth - in.

23.0

0.13639

Fineness Ratio

-

-

Area

Max Cross-Sectional

-

-

Planform

-

-

Wetted

-

-

Base

-

-

Location at:

∅ fuselage BP = 0.0

WP = 500.0 in FS

X₀ 426.0 to X₀ 1307.0 in. FS

TABLE III. - Continued.

MODEL COMPONENT: Body Flap (F_4)

GENERAL DESCRIPTION: Aft body flap used on lightweight orbiter
configuration. Model Scale = 0.00593

DRAWING NUMBER VL-70-000094A. SS-A-0092

<u>DIMENSION:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length, in.	<u>84.70</u>	<u>0.50227</u>
Max Width, in.	<u>265.00</u>	<u>1.57145</u>
Max Depth	<u>-</u>	<u>-</u>
Fineness Ratio	<u>-</u>	<u>-</u>
Area, FT ²		
Max Cross-Sectional		
Planform	<u>142.64</u>	<u>0.00502</u>
Wetted	<u>-</u>	<u>-</u>
Base	<u>38.65</u>	<u>0.00136</u>

TABLE III. - Continued.

MODEL COMPONENT: OMS Pod (M₃)

GENERAL DESCRIPTION: 2A Lightweight orbiter configuration per Rockwell
lines VL70-000094A.

Model Scale = 0.00593

DRAWING NUMBER

VL70-000094A. SS-A-00092

<u>DIMENSION:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length	<u>346.0</u>	<u>2.05178</u>
Max Width	<u>108.0</u>	<u>0.64044</u>
Max Depth	<u>113.8</u>	<u>0.67483</u>
Fineness Ratio	<u>-</u>	<u>-</u>
Area		
Max Cross-Sectional	<u>-</u>	<u>-</u>
Planform	<u>-</u>	<u>-</u>
Wetted	<u>-</u>	<u>-</u>
Base	<u>-</u>	<u>-</u>

ℓ of OMS pod

$Z_0 = 463.9$ in FS: $WP400 + 63.9 = 463.9$ in FS

$Y_0 = 80.0$ in FS

Length: X_0 1214.0 to X_0 1560.0 = 346.0 in FS

TABLE III. - Continued.

MODEL COMPONENT: WING (Wing) Lightweight OrbiterGENERAL DESCRIPTION: Orbiter configuration per Rockwell lines VL70-00093.

Model Scale = 0.00593.

Note: Dihedral angle is defined at the lower surface of the wing at

the 75.33 percent element line projected into a plane perpendicular
to the FRL.TEST NO.DWG. NO. VL70-000093DIMENSIONS:FULL-SCALEMODEL SCALETOTAL DATAArea (Theo.) Ft^2

Planform

Spar. (Theo) In.

Aspect Ratio

Rate of Taper

Taper Ratio

Dihedral Angle, degrees

Incidence Angle, degrees

Aerodynamic Twist, degrees

Sweep Back Angles, degrees

Leading Edge

Trailing Edge

0.25 Element Line

Chords: - in.

Root (Theo) B.P.O.O.

Tip, (Theo) B.P.

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

B.L. of .25 MAC

EXPOSED DATAArea (Theo) Ft^2

Span, (Theo) In. BP108

Aspect Ratio

Taper Ratio

Chords

Root BP108

Tip 1.00 $\frac{b}{2}$

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

B.L. of .25 MAC

Airfoil Section (Rockwell Mod NASA)

XXXX-64

T/C@ Root $\frac{b}{2}$ = 0.485T/C@ Tip $\frac{b}{2}$ = 1.00

Data for (1) of (2) Sides

Leading Edge Cuff Ft^2 Planform Area Ft^2

Leading Edge Intersects Fus M. L. @ Sta

Leading Edge Intersects Wing @ Sta

2690.0

0.09459

936.682

5.55452

2.265

2.265

1.177

1.177

0.200

0.200

3.500

3.500

3.000

3.000

+3.000

+3.000

45.000

45.000

-10.24

-10.24

35.209

35.209

689.24

4.08919

137.85

0.81745

474.81

2.81562

1136.89

6.74176

299.20

1.77426

182.13

1.08003

1752.29

0.06162

720.68

4.27363

2.058

2.058

0.2451

0.2451

562.40

3.33503

137.85

0.81745

393.03

2.33067

1185.31

7.02399

300.20

1.78019

143.76

0.85250

0.10

0.10

0.12

0.12

170.33

0.00423

560.0

3.32080

1035.0

6.13755

TABLE III. - Concluded.

MODEL COMPONENT: VERTICAL (V₅) Lightweight orbiter configurationGENERAL DESCRIPTION: Centerline vertical tail double wedge airfoil with rounded leading edge.Model Scale = 0.00593DRAWING NUMBER:VL 70-000095. SS-A-00092DIMENSIONS:FULL-SCALEMODEL SCALETOTAL DATA

Area (Theo) Ft ²	413.25	0.01453
Planform	-	-
Span (Theo) In	315.72	1.87222
Aspect Ratio	1.675	1.675
Rate of Taper	0.507	.507
Taper Ratio	0.404	.404
Sweep Back Angles, degrees		
Leading Edge	45.000	45.000
Trailing Edge	26.249	26.249
0.25 Element Line	41.130	41.130
Chords:		
Root (Theo) WP	268.50	1.59220
Tip (Theo) WP	108.47	0.62323
MAC	199.81	1.18487
Fus. Sta. of .25 MAC	1463.50	8.67856
W. P. of .25 MAC	635.52	3.76863
B. L. of .25 MAC	0.0	0.0
Airfoil Section		
Leading Wedge Angle Deg	10.00	10.00
Trailing Wedge Angle Deg	14.92	14.92
Leading Edge Radius	2.00	0.01186
Void Area	13.17	0.00046
Blanketed Area	12.67	0.00045

TABLE IV. Orbiter Thermocouple Location

T/C No.	Skin Thick.	* Location		Remarks	T/C No.	Skin Thick.	* Location		Remarks
		$y = b/2$	$x/l = x/c$				$y = b/2$	$x/l = x/c$	
1	.033	$y = .047$	.1536	Windshield	31	.0315	$y = .415$	1.00	Fuselage
2	.031	$y = .047$	.1612		32	.0315	$b/2 = .40$	.225	Wing
3	.034	$y = .047$	.1694		33	.033		.250	
4	.0375	$y = .213$	.1588		34	.0312		.300	
5	.0375	$y = .196$	.1657		35	.033		.400	
6	.0335	$y = .178$	.1724		36	.0335		.500	
7	.033	$y = 0$	.0875	Fuselage	37	.032		.600	
8	.032		.100		38	.0315		.700	
9	.031		.125		39	.0315		.400	
10	.0305		.150		40	.0310		.900	
11	.030		.175		41	.034	$b/2 = .60$	.175	
12	.031		.200		42	.032		.200	
13	.0295		.250		43	.031		.300	
14	.0295		.300		44	.033		.400	
15	.0295		.400		45	.032		.500	
16	.0302		.500		46	.032		.600	
17	.0312		.600		47	.0325		.700	
18	.0315		.700		48	.031		.800	
19	.031		.800		49	.0315		.875	
20	.0295		.900		50	.035	$b/2 = .80$	.250	
21	.030		1.00		51	.033		.300	
22	.0305		1.025		52	.033		.400	
23	.0285	$y = .415$	.350		53	.0315		.500	
24	.0285		.375		54	.032		.600	
25	.0315		.400		55	.032		.700	
26	.0325		.500		56	.0335		.800	
27	.0320		.600		57	.033		.850	
28	.0315		.700						
29	.0325		.800						
30	.0315		.900						

* model scale, in.

$x/l = (t/c's 1-31)$

$x/c = (t/c's 32-57)$

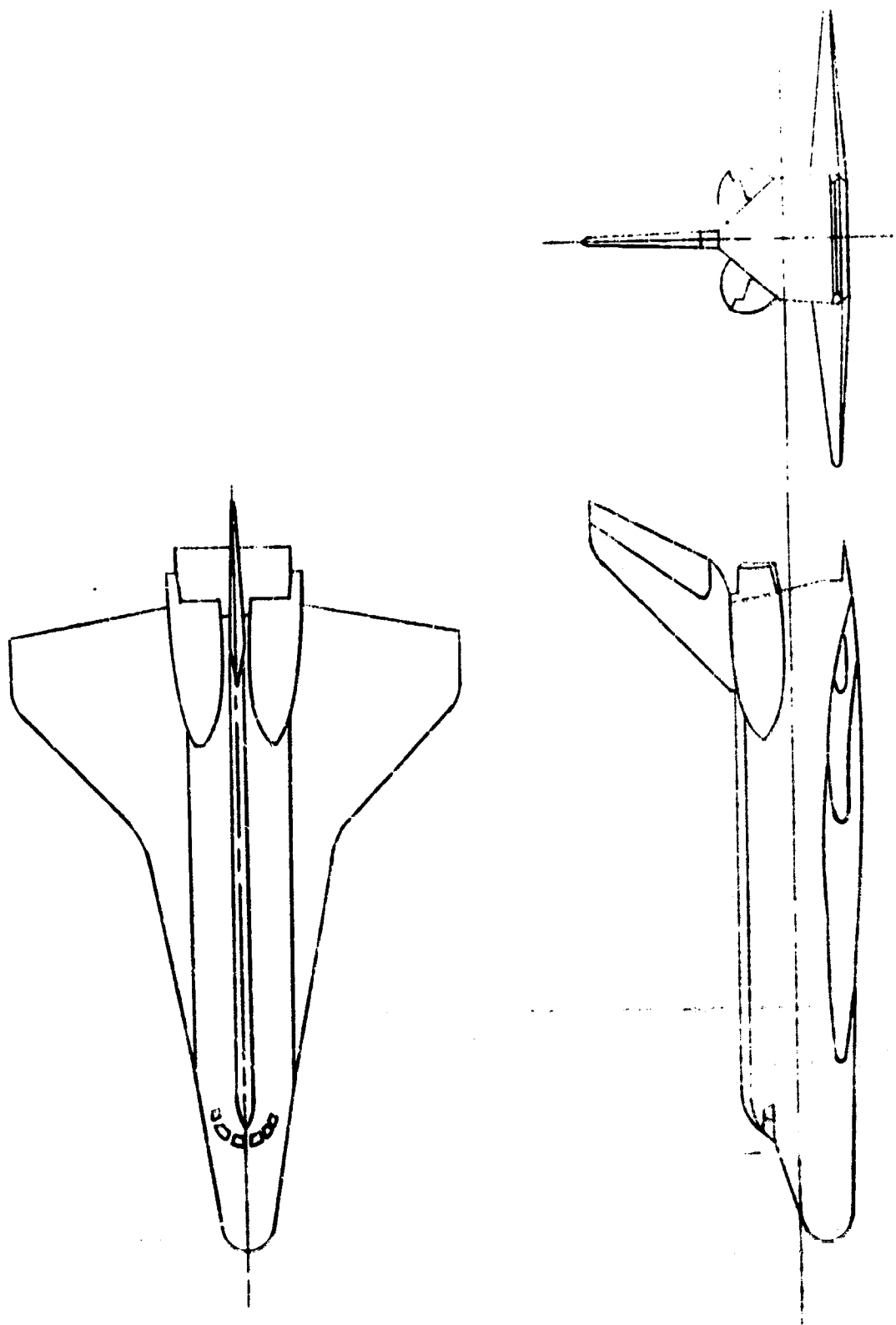


Figure 1. General Model Arrangement.

THERMOCOUPLE LOCATIONS

WINDSHIELD				Y ₀ 0				BP 70				.4 b/2				.6 b/2				.8 b/2			
DIST. FROM X ₀ 200		Y	NO.	X/L	DIST. FROM X ₀ 200	NO.	X/L	DIST. FROM X ₀ 200	X/C	DIST. FROM L.E.	NO.	X/C	DIST. FROM L.E.	NO.	X/C	DIST. FROM L.E.	NO.	X/C	DIST. FROM L.E.				
NO.	X ₀ 200																						
1	1.210	.047	7	.0875	.689	23	.35	2.757	.742	.225	32	.225	.742	41	.175	.423	.25	.419					
2	1.272	.047	8	.100	.788	24	.375	2.954	.819	.25	33	.25	.819	42	.2	.476	.3	.491					
3	1.334	.047	9	.125	.985	25	.4	3.151	.912	.3	34	.3	.912	43	.3	.689	.4	.639					
4	1.251	.213	10	.150	1.182	26	.5	3.939	1.279	.4	35	.4	1.279	44	.4	.901	.5	.787					
5	1.305	.196	11	.175	1.378	27	.6	4.726	1.586	.5	36	.5	1.586	45	.5	1.114	.6	.934					
6	1.358	.178	12	.20	1.595	28	.7	5.514	1.893	.6	37	.6	1.893	46	.6	1.326	.7	1.081					
			13	.25	1.969	29	.8	6.302	2.200	.7	38	.7	2.200	47	.7	1.539	.8	1.222					
			14	.3	2.363	30	.9	7.089	2.507	.8	39	.8	2.507	48	.8	1.751	.85	1.301					
			15	.4	3.151	31	1.0	7.877	2.814	.9	40	.9	2.814	49	.875	1.911							
			16	.5	3.939																		
			17	.6	4.726																		
			18	.7	5.514																		
			19	.8	6.302																		
			20	.9	7.089																		
			21	1.0	7.877																		
			22	1.025	8.074																		

23

Y₀ = 0

7 8 9 10 11 12 13 14 15 16 17

24 25 26 27

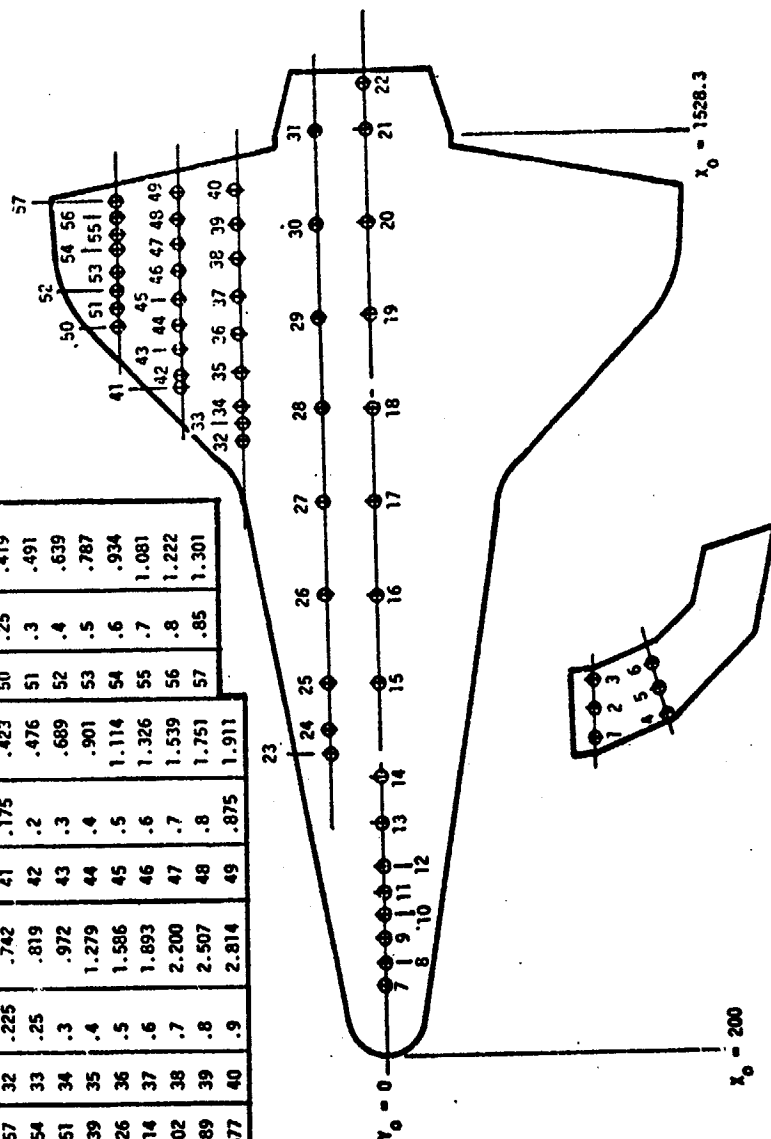


Figure 2. 41-OTS .006 Scale Orbiter T/C Locations.

SPECIFIC HEAT VS. TEMPERATURE
FOR 1-3% Ni STAINLESS STEEL

$$C_p = 0.00101 + (0.00005 \times 10^{-3}) T$$

NOTE: GENERATED FROM CHROMAL
STARTING

T, Temperature, °F

Figure 3. Specific Heat Curve.

DATA FIGURES

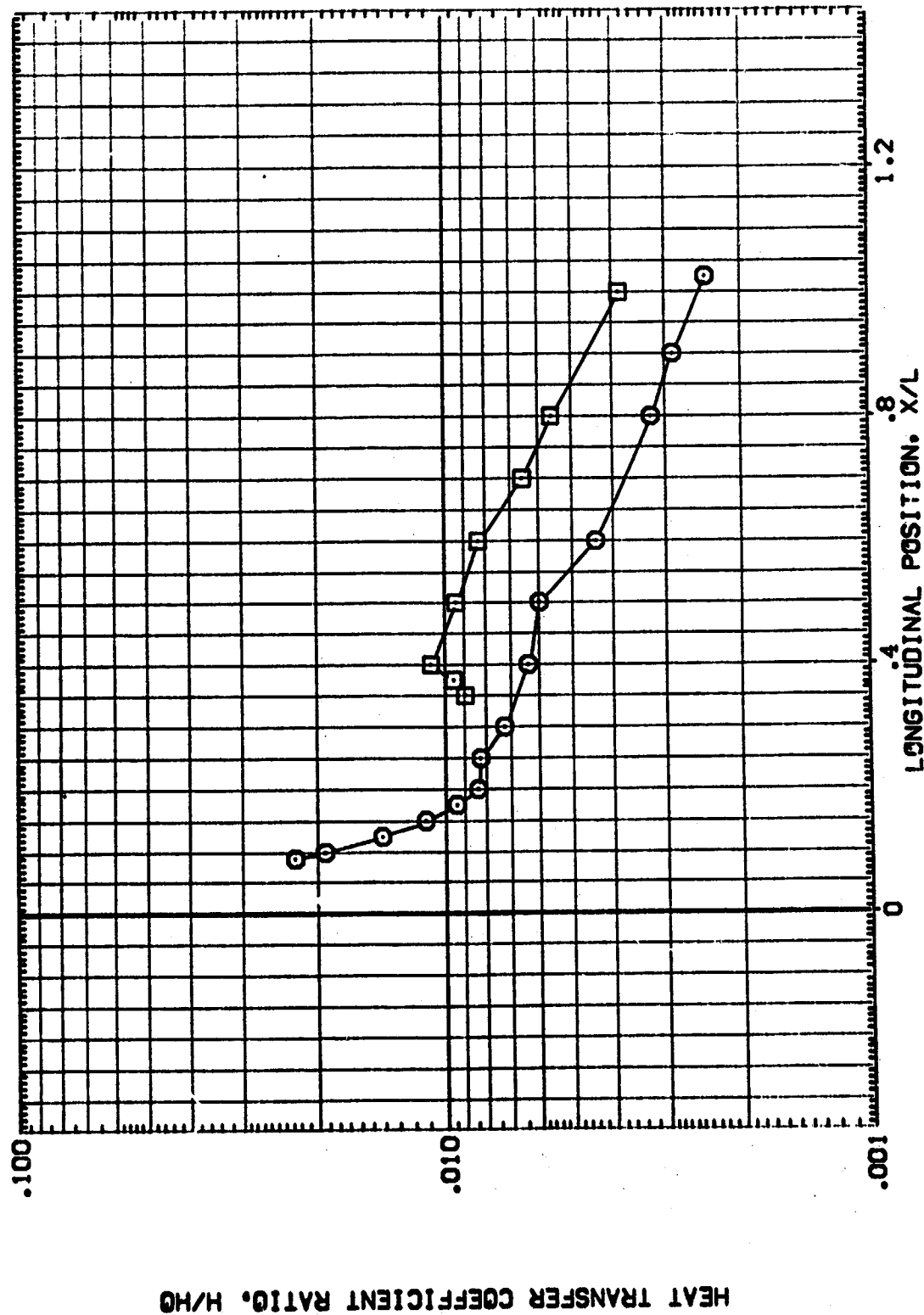
CH13 810C5W87D7F4M3V5

(BP00001)

SYMBOL
□ ○

V(BP) .000 70.000
MACH .850 1.000
RV/L

PARAMETRIC VALUES
MACH 9.000 ALPHA .000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

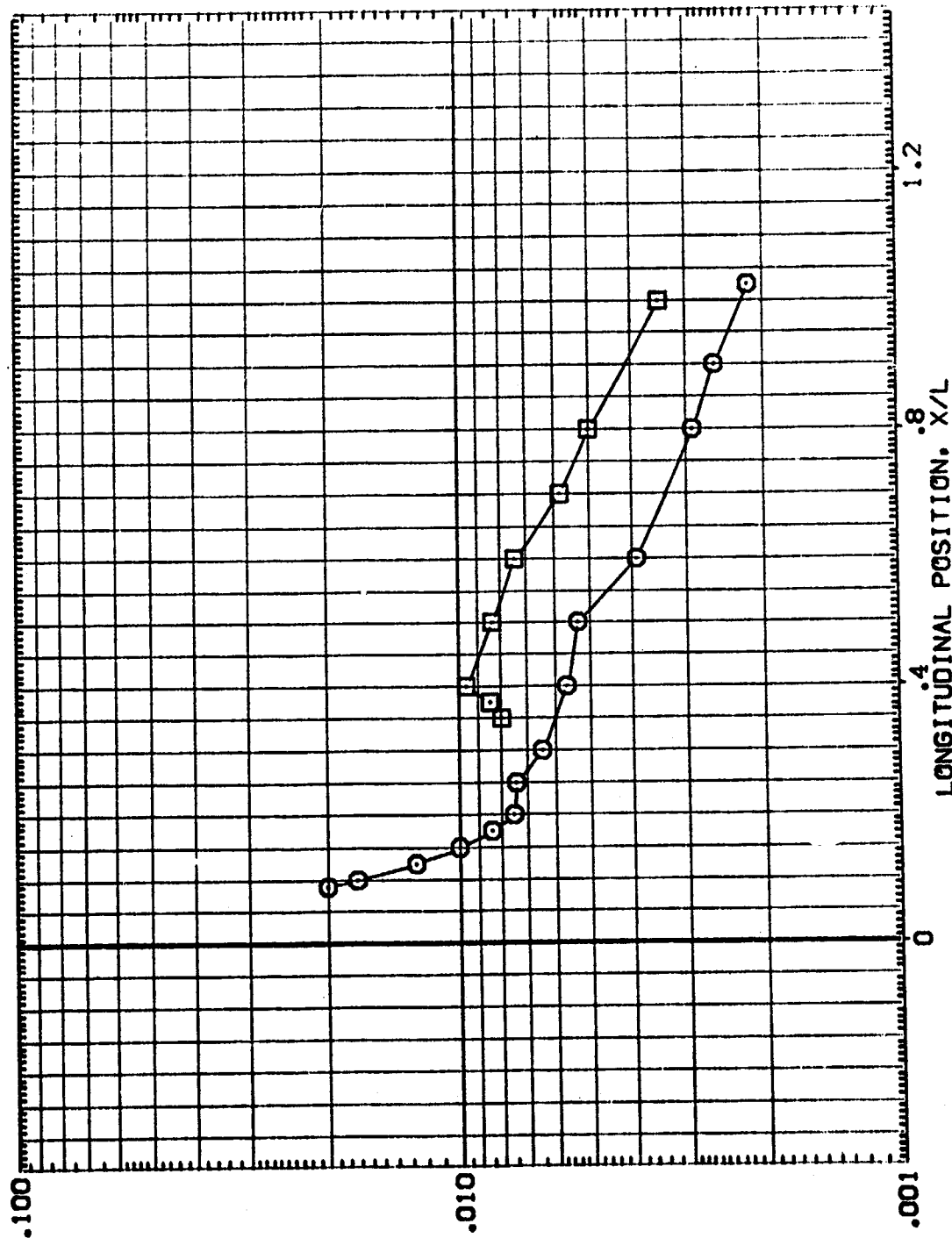
CH13 B10C5V87D7F4M3V5

(BP0001)

SYMBOL
□ ○

Y(BP) 8.000
H/W/H/T 1.000
R/V/L 1.000

PARAMETRIC VALUES
MACH 8.000
BETA .000
RUDDER .000
ALPHA .000
ELEVON .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LONGITUDINAL POSITION, X/L

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



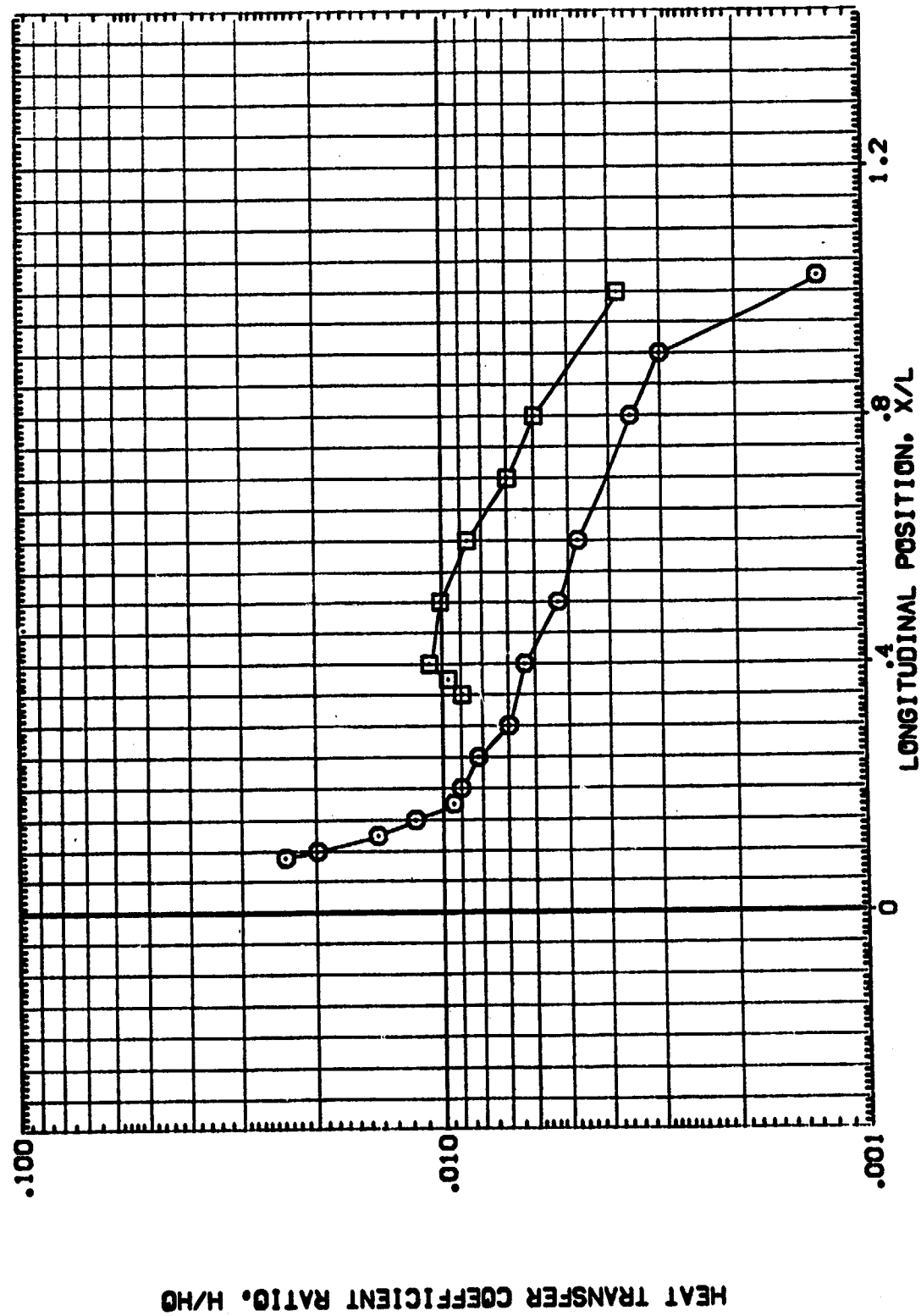
QH13 B10C5W87D7F4M3V5

(BP00001)

SYMBOL □

Y(BP) .000
H/W/MT .850
RVL 2.000

PARAMETRIC VALUES
MACH 8.000
BETA .000
RUDDER .000
ALPHA .000
ELEVON .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

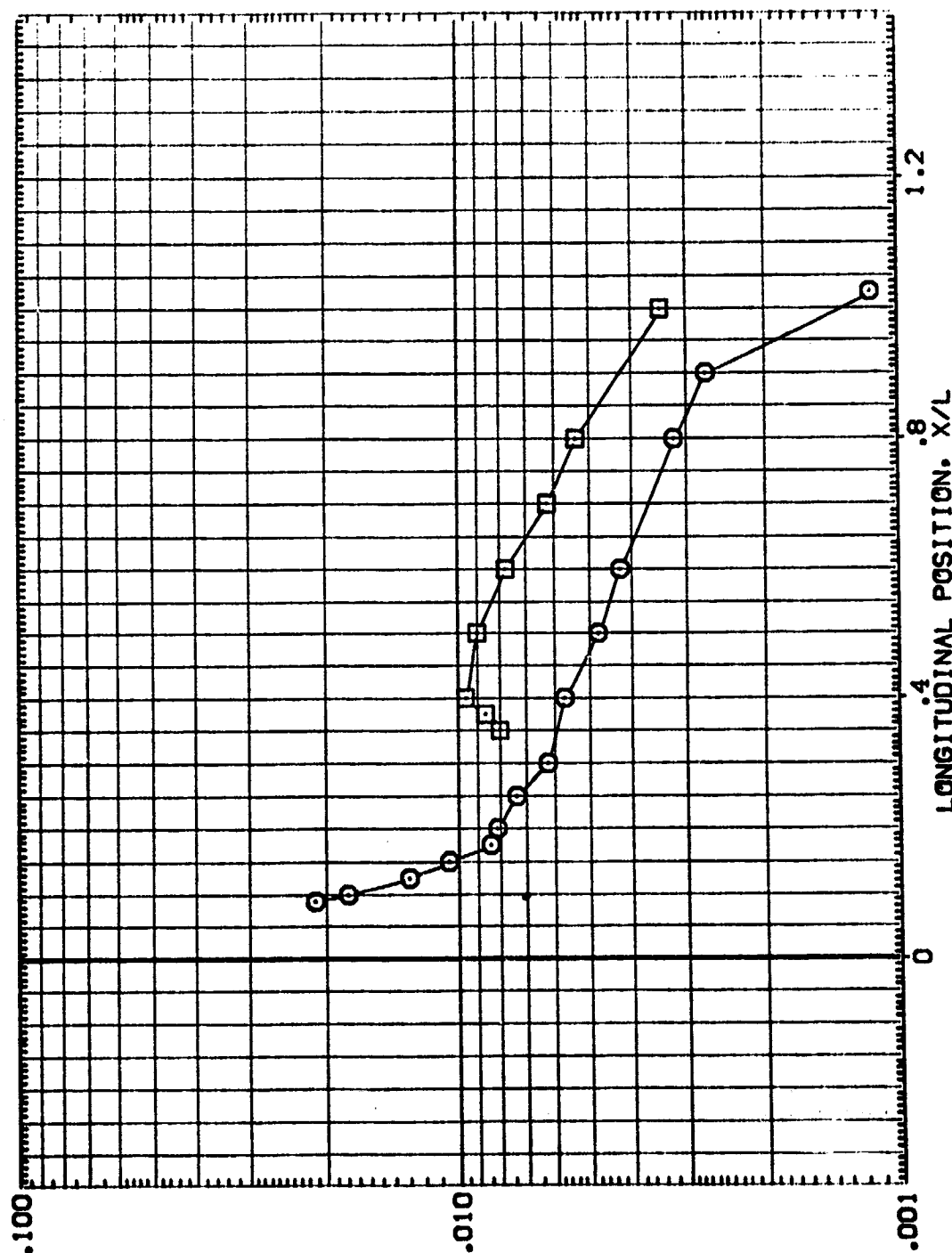
0H13 810C5W87D7F4M3V5

(BP0001)

SYMBOL
○
□

V(8P) .000 70.000
MAV/MT 1.000 2.000
RA/L

PARAMETRIC VALUES
MACH 8.000 ALPHA .000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H₀

LONGITUDINAL POSITION, X/L
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

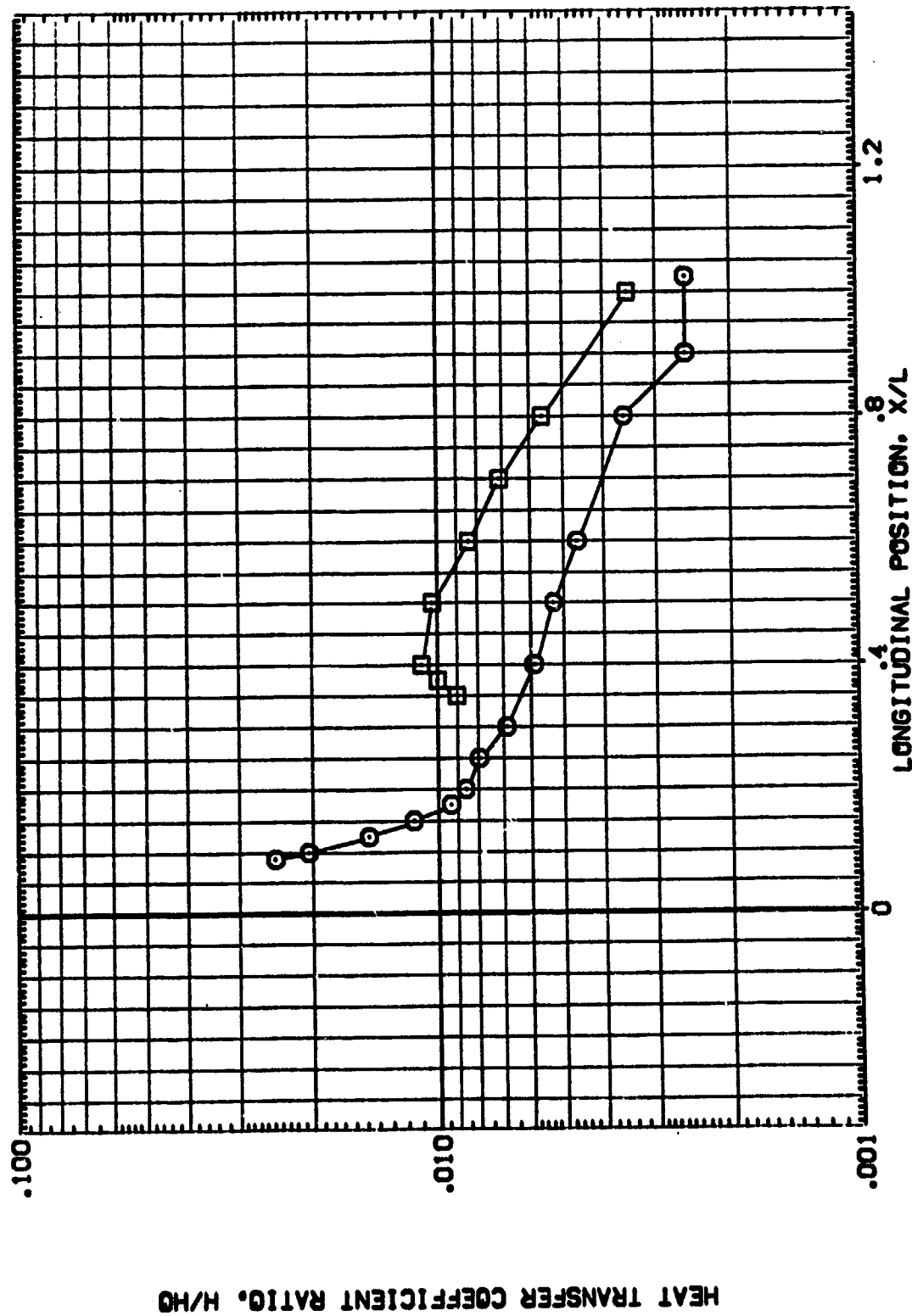
0H13 B10C5W87D7F4M3V5

(BP00001)

SYMBOL
□

Y(%)
70.000
HAY/HT
.850
RW/L
3.000

PARAMETRIC VALUES
MACH
8.000
BETA
.000
RUDDER
ELEVON
.000
ALPHA
.000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

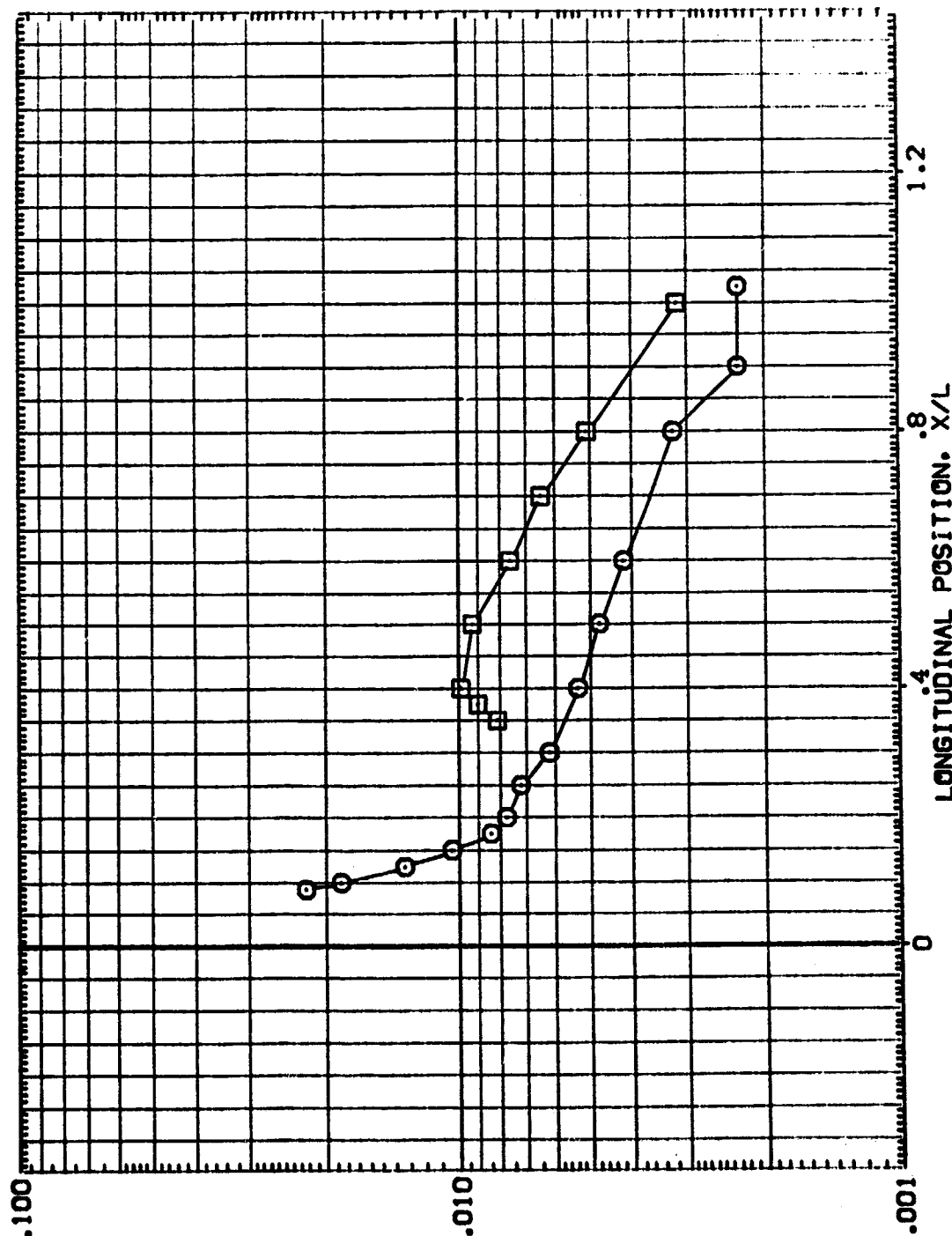
0H13 B10C5W87D7F4M3V5

(BP0001)

SYMBOL
○ □

Y(EP) HAV/HT RV/L
.000 1.000 3.000
70.000

PARAMETRIC VALUES
MACH 8.000 ALPHA .000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



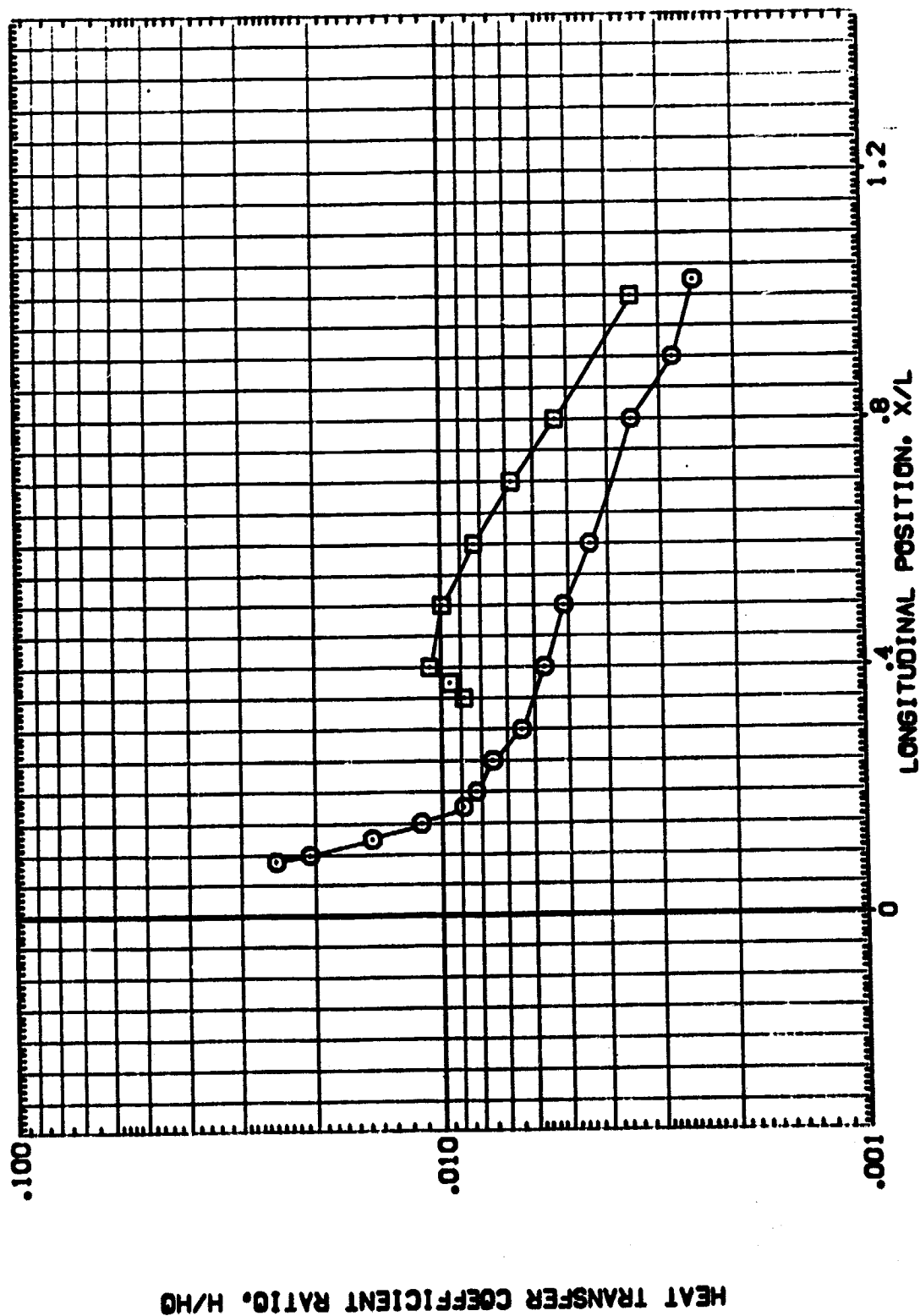
0H13 B10C5W87D7F4M3V5

(BP0001)

SYMBOL
□ ○

Y (BP) MAX/MT RV/L
.000 .800 4.000
70.000

PARAMETRIC VALUES
MACH 8.000 ALPHA .000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

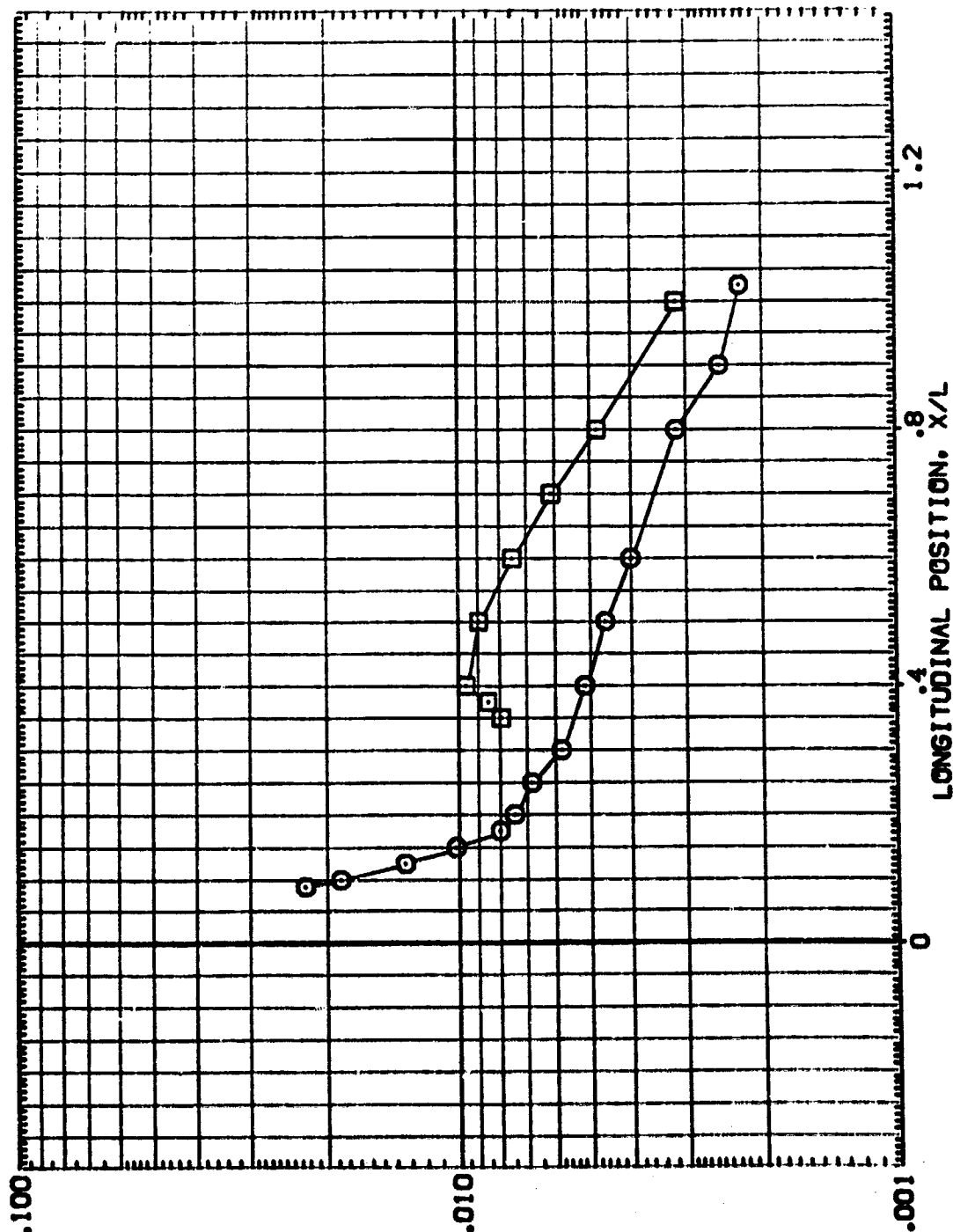
0H13 B10C5W87D7F4M3V5

(BP0001)

STRENGTH
□

Y(BP) 70.000
MW/MT 1.000
RV/L 4.000

PARAMETRIC VALUES
MACH 8.000
BETA .000
RUDDER .000
ALPHA .000
ELEVON .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



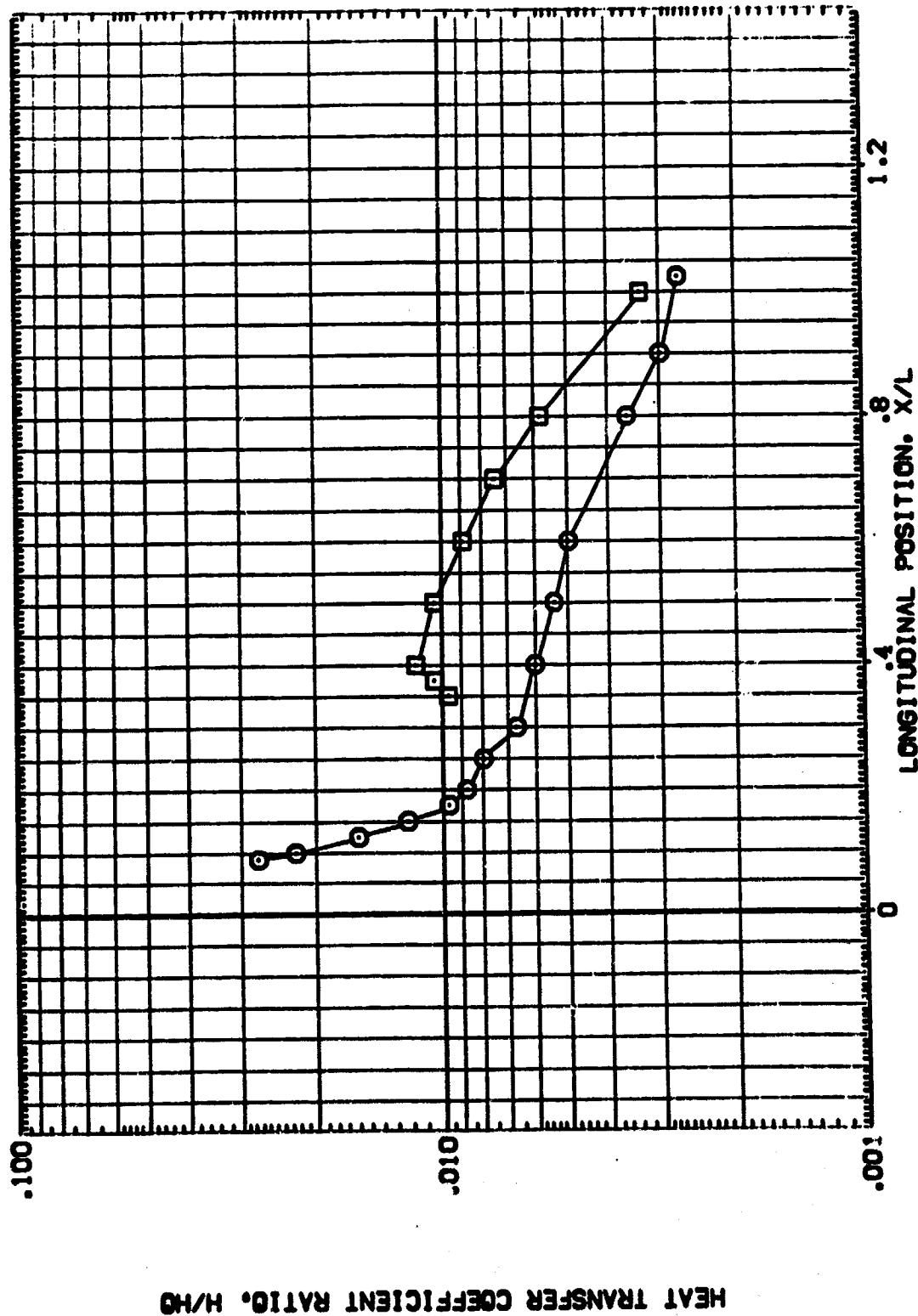
0H13 B10C5W87D7F4M3V5

(BP0001)

SYMBOL
□

Y(BP) 70.000
MAY/AT .850
RVL 8.000

PARAMETRIC VALUES
MACH 9.000 ALPHA .000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

OH13 B10C5W87D7F4M3V5

(BP0001)

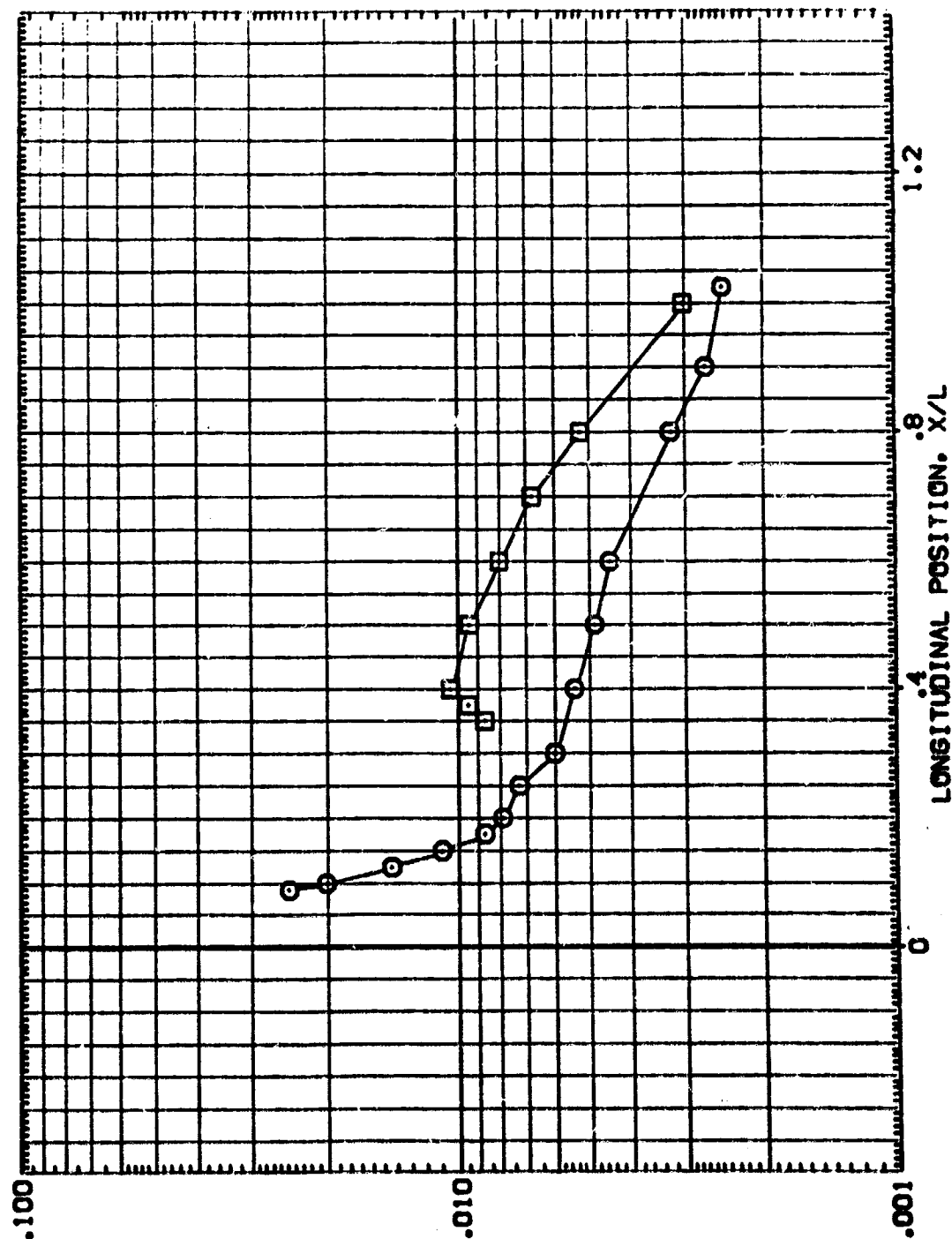
SYMBOL
□

Y(EP) .000
70.000

MAVANT 1.000

SN/L 6.000

PARAMETRIC VALUES
MACH 8.000
BETA .000
ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



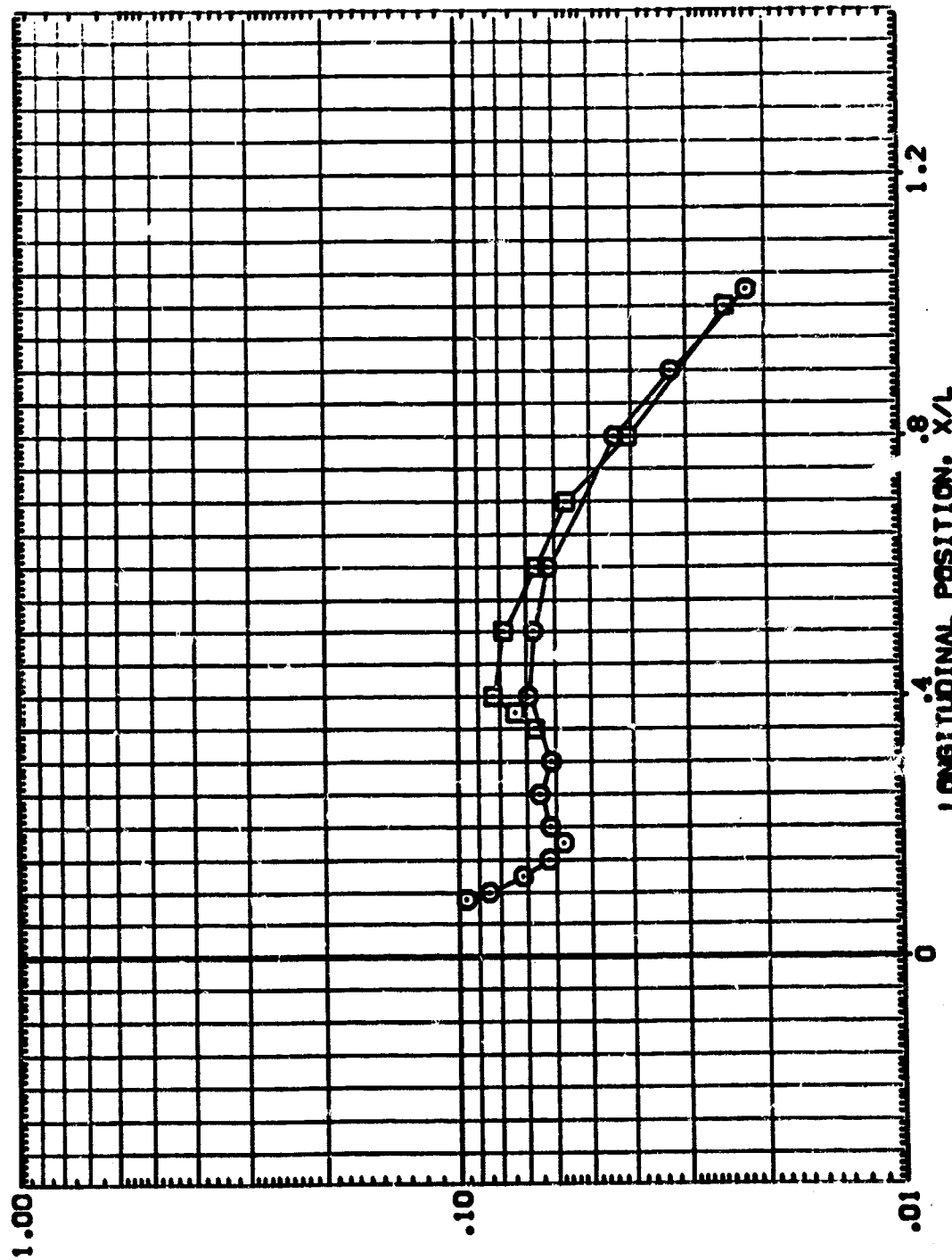
0H13 B10C5W87D7F4M3V5

(BP00002)

SYMBOL
□ ○

Y(EP) HAV/AT RW/L
.000 .800 1.000
70.000

PARAMETRIC VALUES
HUCH 30.000
BETA .000 ALPHA
RUDDER .000 ELEVON .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

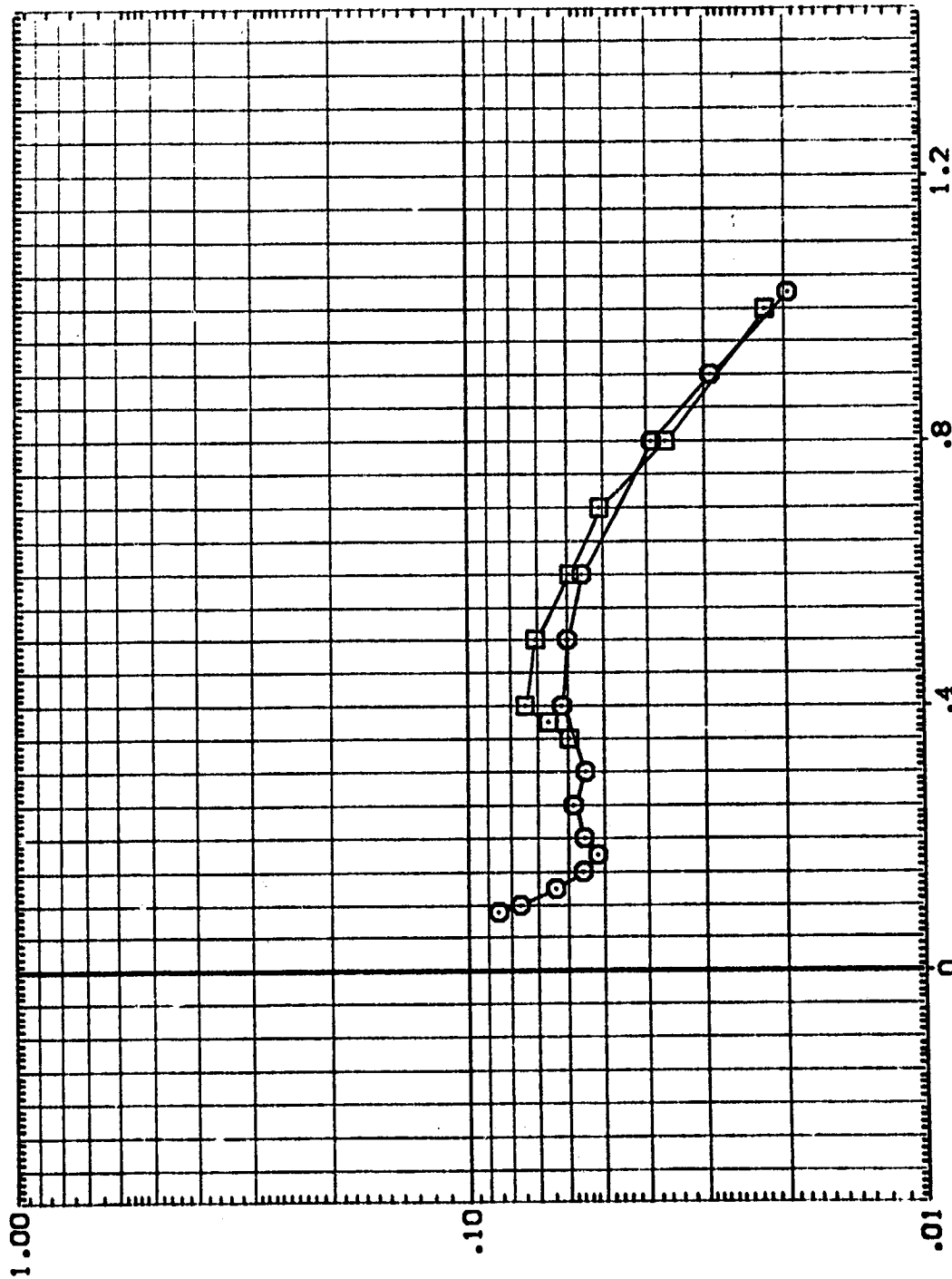
0H13 B10C5W87D7F4M3V5

(BP0002)

SYMBOL
□ ○

Y(BP) 70.000
HAW/HT 1.000
REV/L 1.000

PARAMETRIC VALUES
MACH 9.000
BETA .000
RUDDER .000
ALPHA 30.000
ELEVON .000



HEAT TRANSFER COEFFICIENT RATIO, H/H₀

LONGITUDINAL POSITION, X/L

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



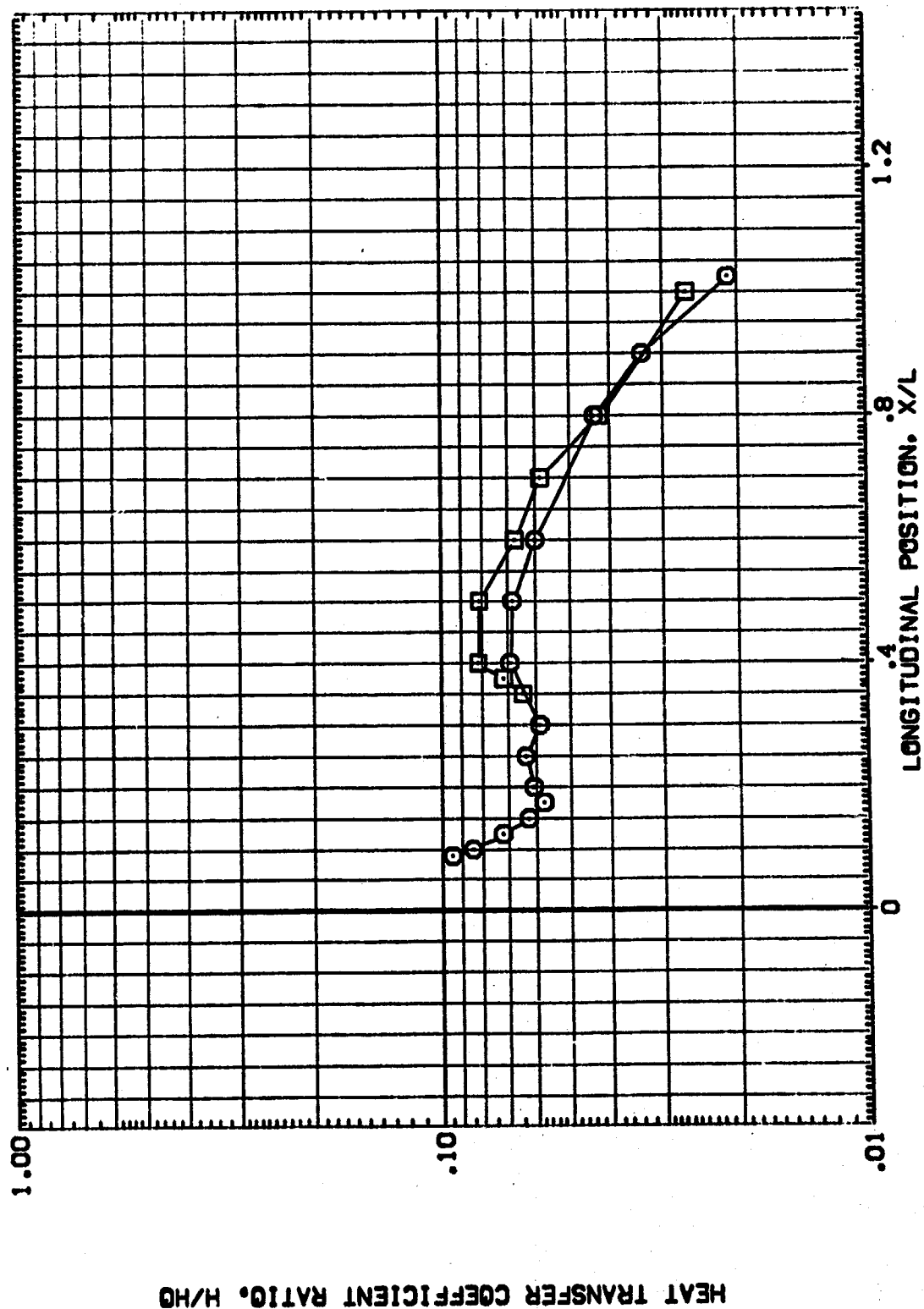
0H13 B10C5W87D7F4M3V5

(BP00002)

SYMBOL
□ ○

Y(BP) .000
70.000
HAW/HT .850
RVL 2.000

PARAMETRIC VALUES
MACH 8.000
BETA .000
RUDDER .000
ALPHA 30.000
ELEVON .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



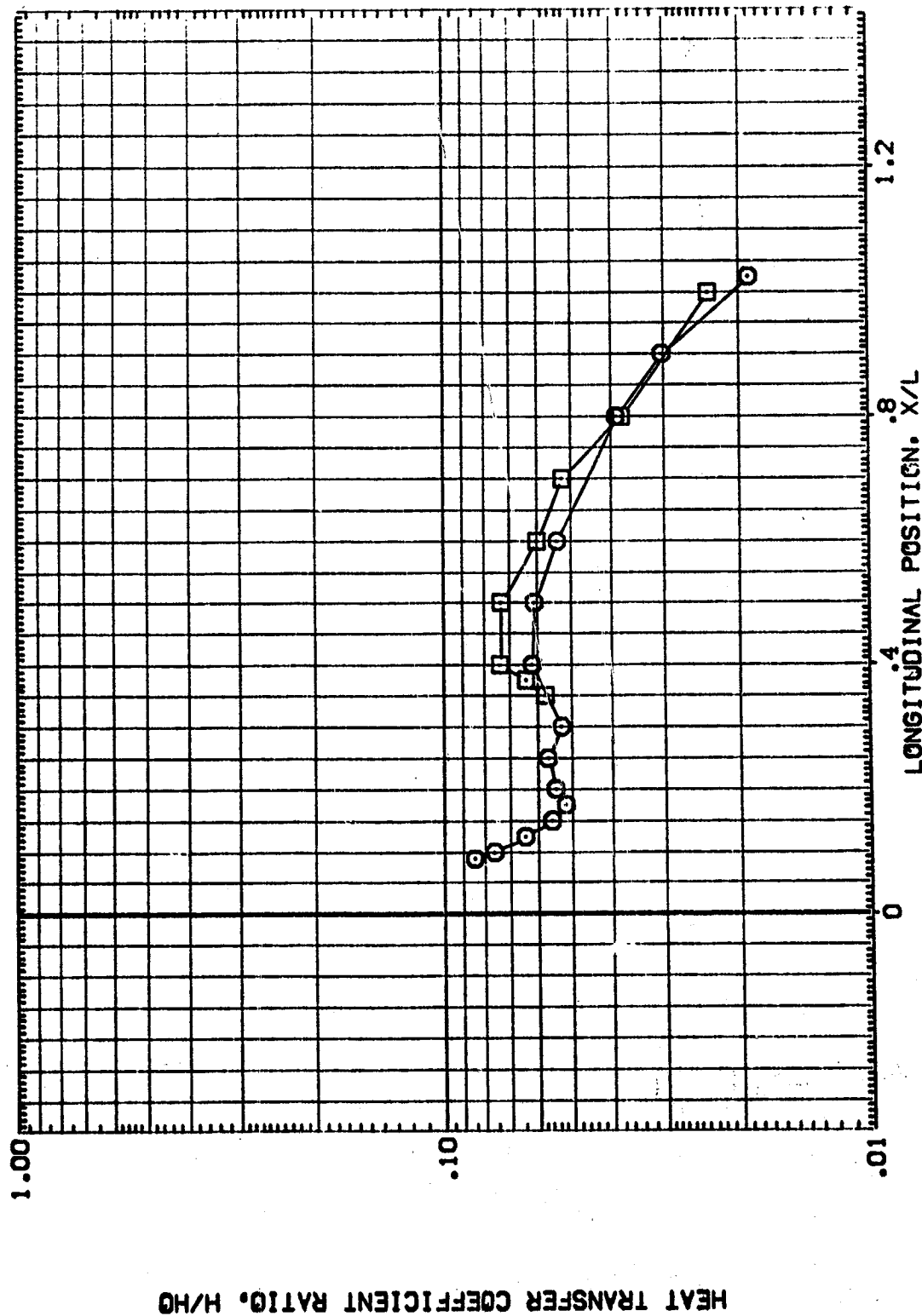
OH13 B10C5W8707F4M3V5

(BP00002)

SYMBOL
□ ○

Y (BP) 70.000
HAW/HT 1.000
RV/L 2.000

PARAMETRIC VALUES
MACH 8.000
BETA .000
RUDDER .000
ALPHA 30.000
ELEVON .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

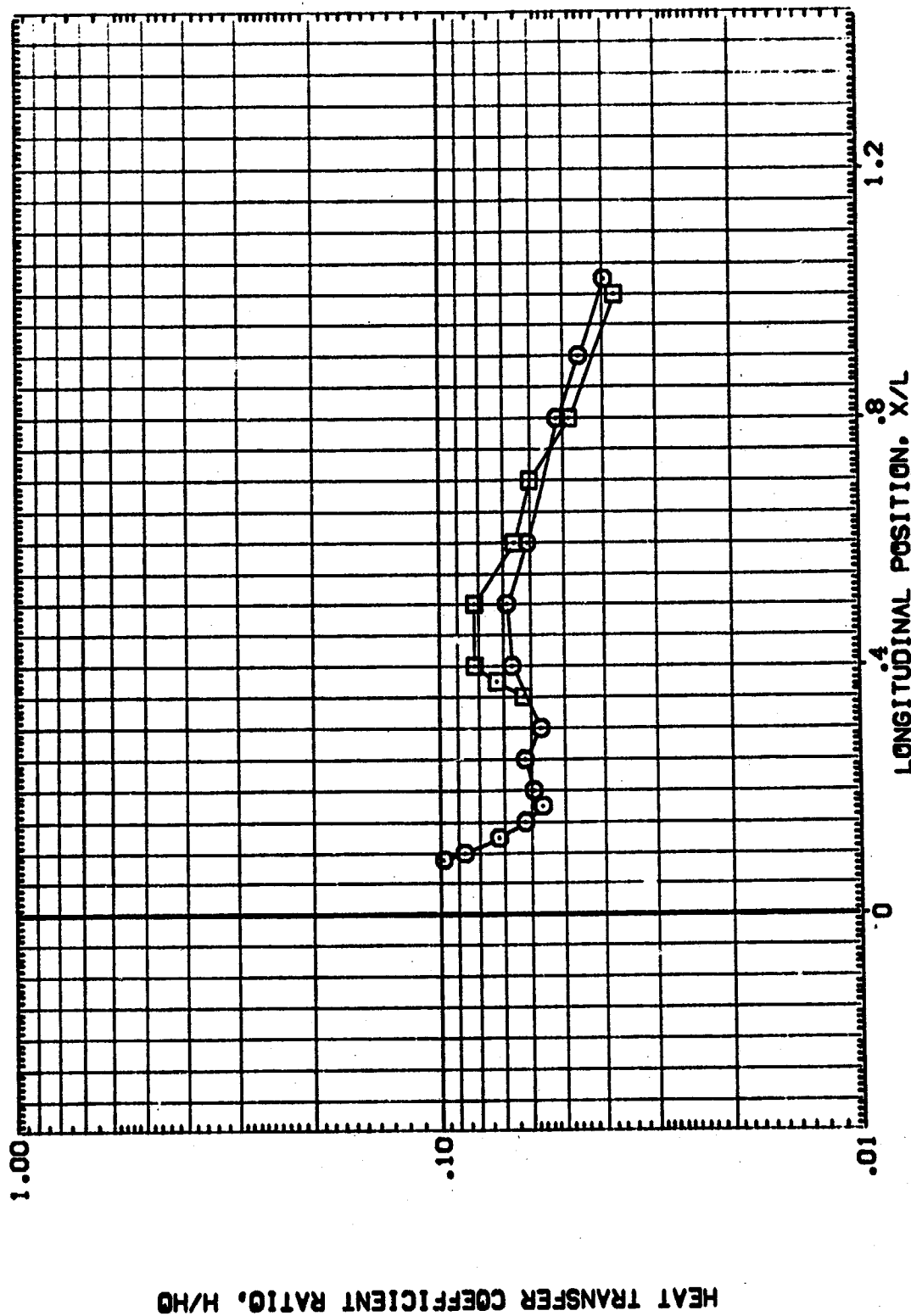
QH13 B10C5W87D7F4M3V5

(BP00002)

SYMBOL
○ □

V(BP) .000 70.000
HAW/HT .850 3.000
RN/L

PARAMETRIC VALUES
MACH 8.000 ALPHA 30.000
BETA .000 ELEVON .000
RUDDER .000



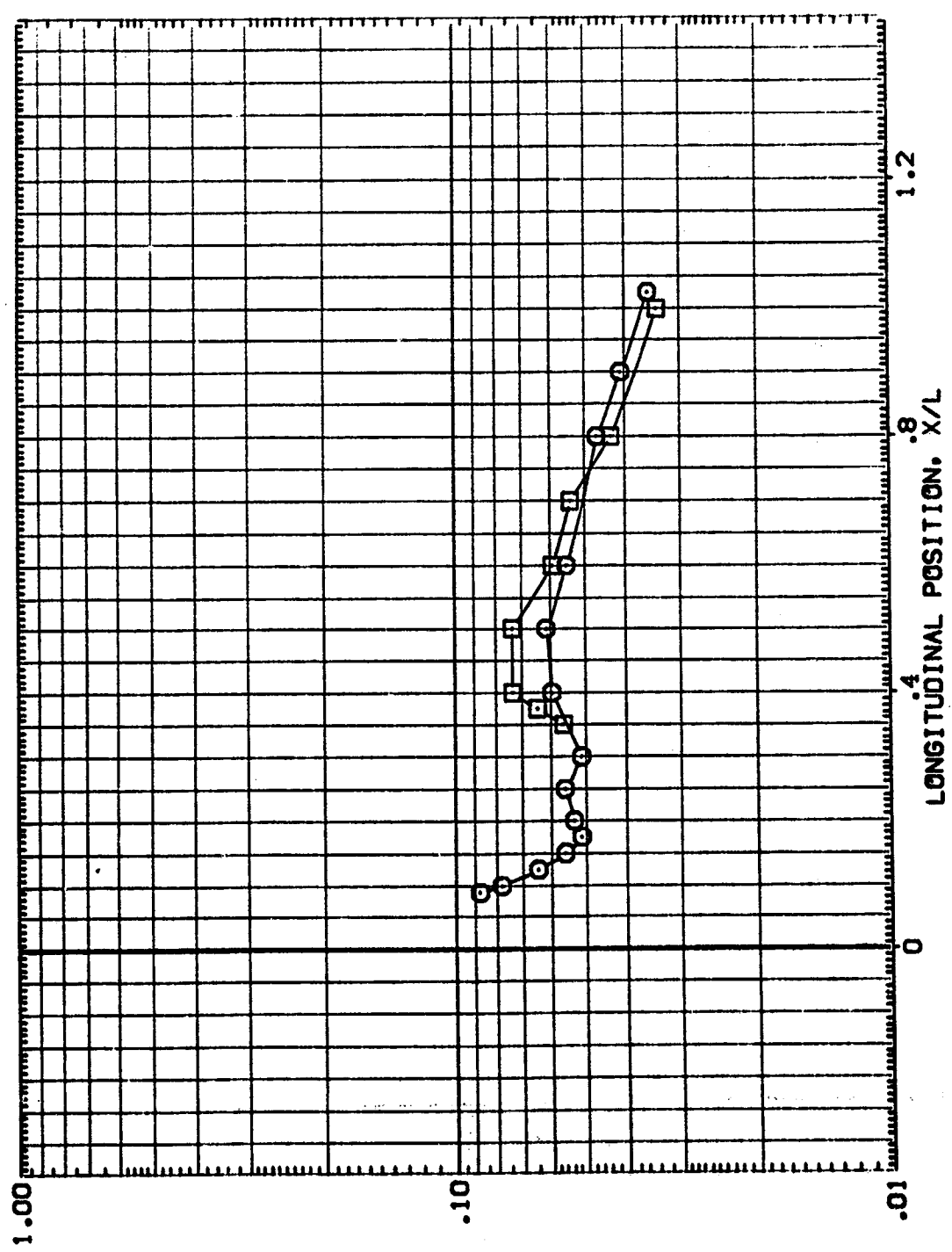
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

0H13 B10C5W87D7F4M3V5

(BP00002)

PARAMETRIC VALUES
 MACH 8.000 ALPHA 30.000
 BETA .000 ELEVON .000
 RUDDER .000

SYMBOL V(BP) HAV/HT RVAL
 □ .000 1.000 3.000
 ○ 70.000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

0H13 B10C5W87D7F4M3V5

(BP0002)

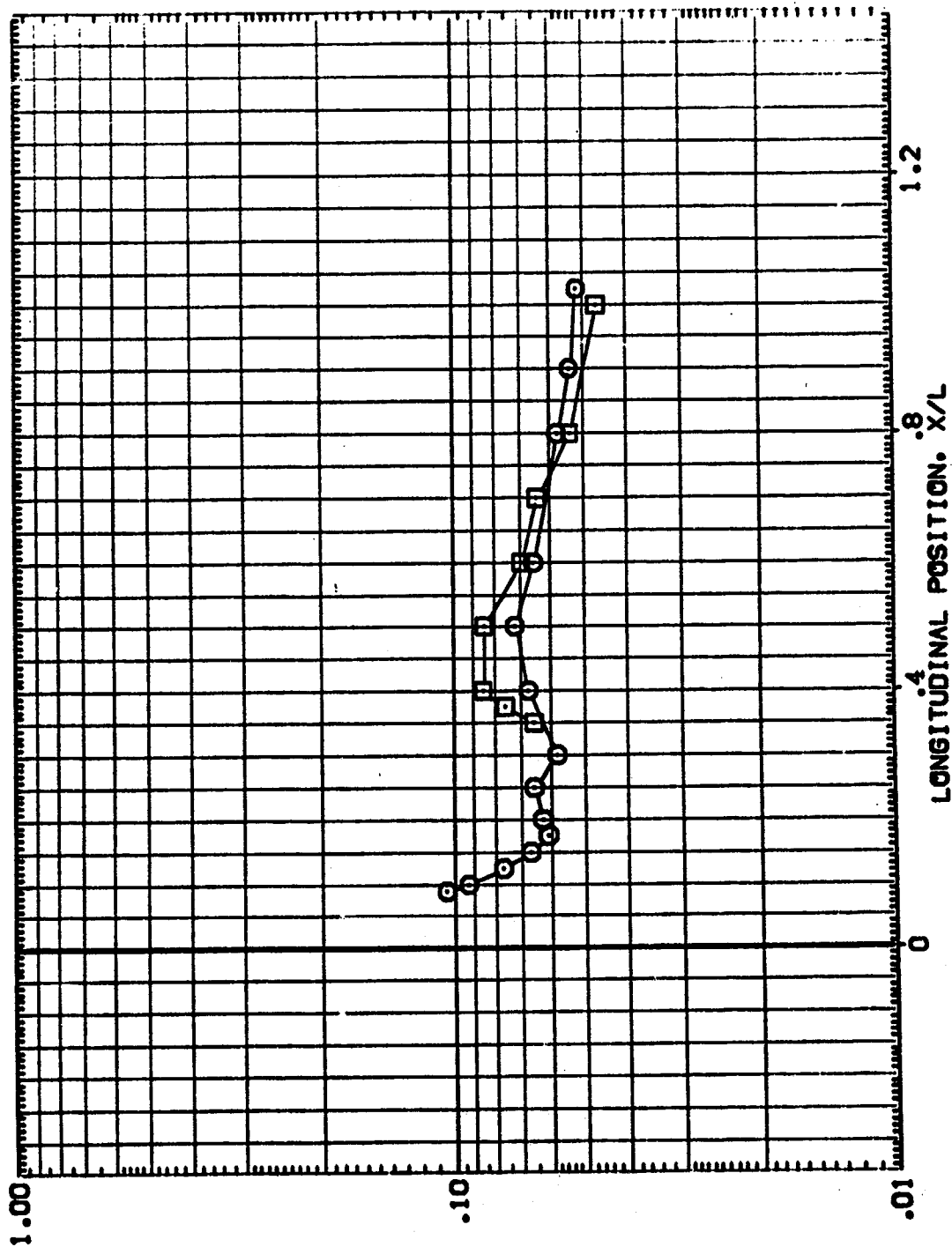
SYMBOL
□ ○

Y(BP) .000
70.000

HAW/MT .850

RV/L 4.000

PARAMETRIC VALUES
MACH 8.000 ALPHA 30.000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/HQ

LONGITUDINAL POSITION, X/L

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

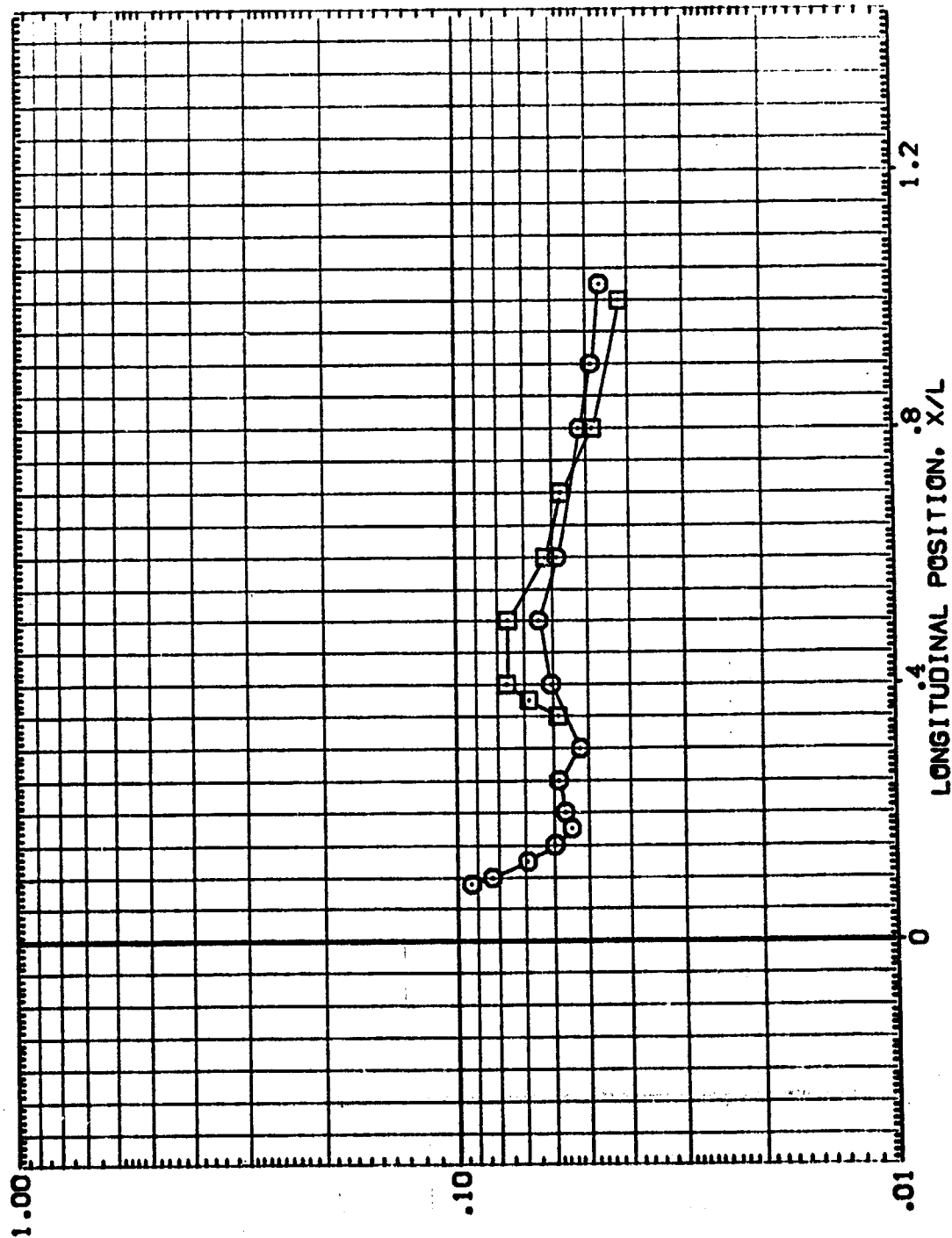
CH13 B10C5W8707F4M3V5

(BP0002)

SYMBOL
□

Y(GP) .000 70.000
HAY/NT 1.000 4.000
RV/L

PARAMETRIC VALUES
MACH 8.000 ALPHA 30.000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



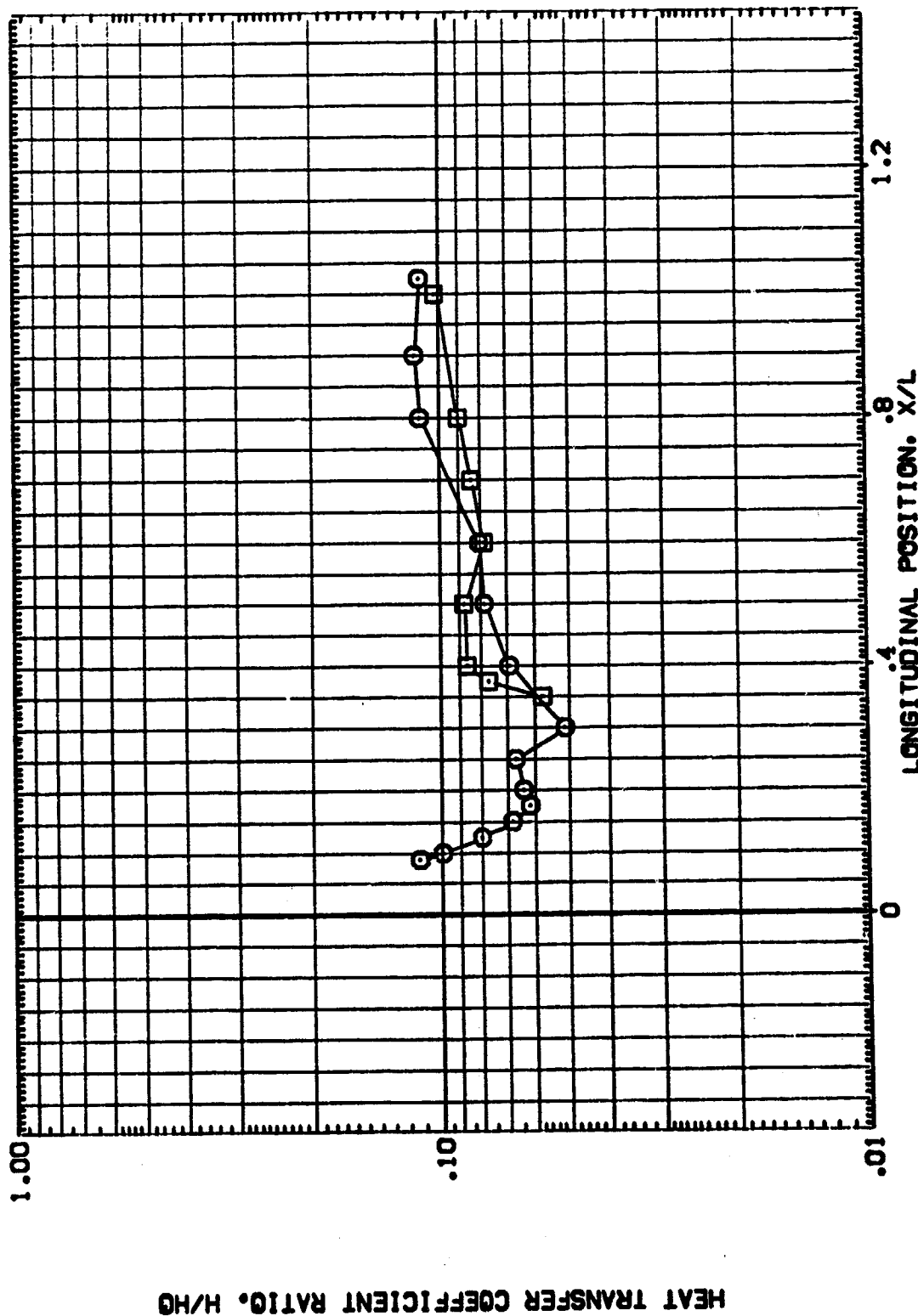
GH13 B10C5W87D7F4M3V5

(8P0002)

SYMBOL
□

Y(EP) .000
WAV/HT .850
RS/L 6.000

PARAMETRIC VALUES
MACH 8.000
BETA .000
RUDDER .000
ALPHA 30.000
ELEVON .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

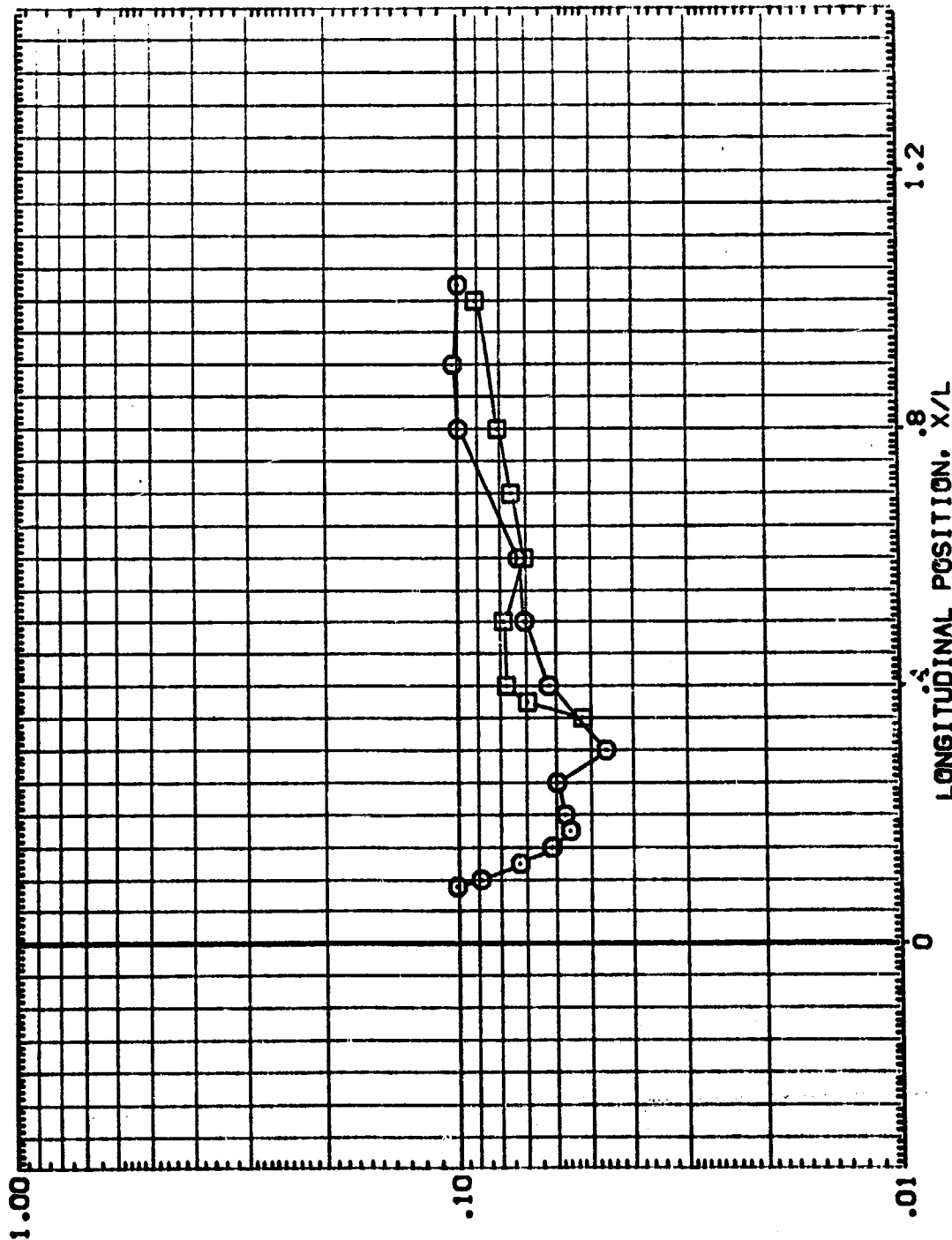
0H13 B10CSW87D7F4M3V5

(BP0002)

SYMBOL
□

Y(BP) .000 70.000
MAY/MT 1.000 6.000
RV/L

PARAMETRIC VALUES
MACH 9.000 ALPHA 30.000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



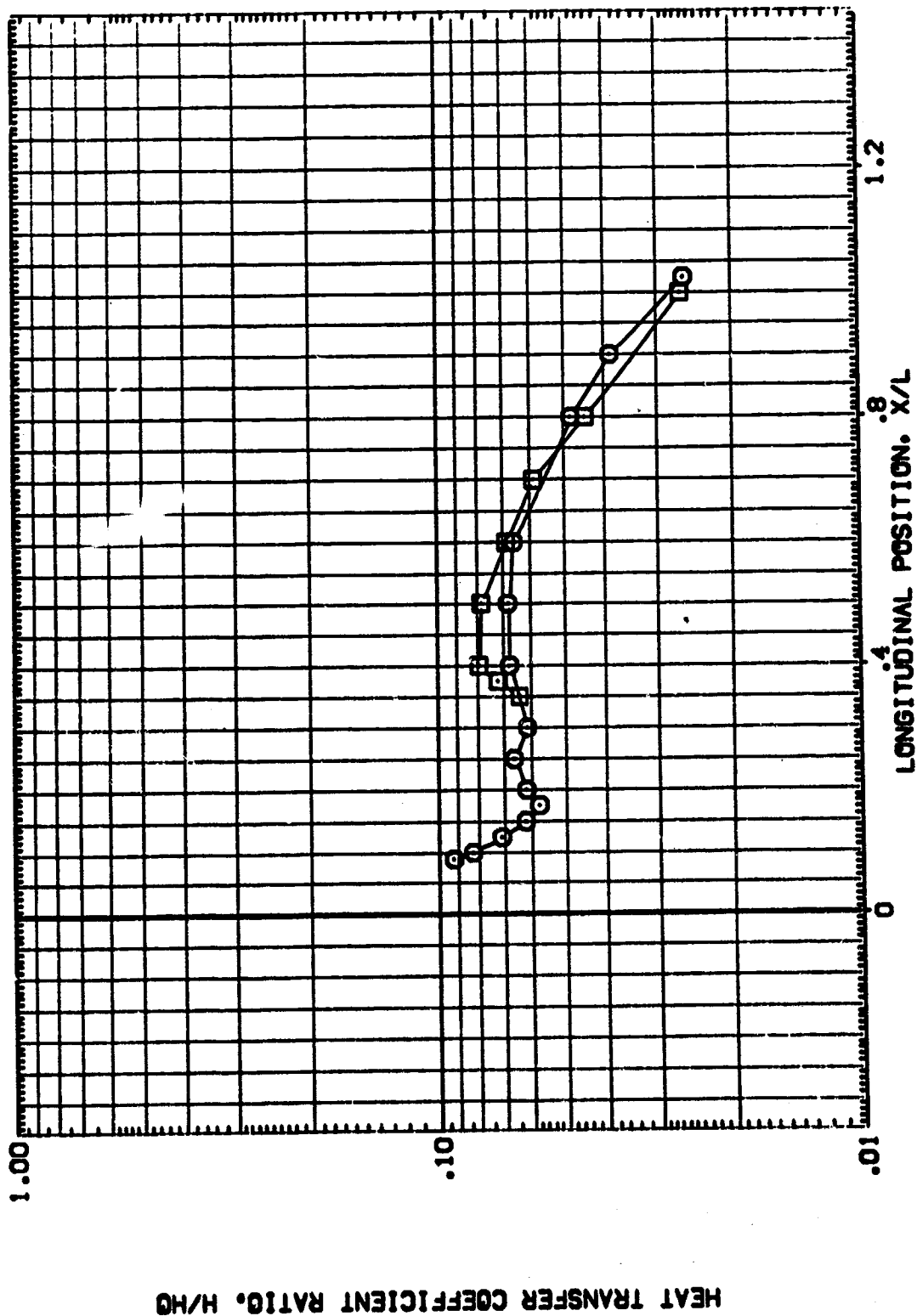
CH13 B10C5W87D7F4M3V5

(BP0003)

SYMBOL
□ ○

Y(BP) .000 70.000
MAY/HT .850 1.000

PARAMETRIC VALUES
MACH 8.000 ALPHA 35.000
BETA .000 ELEVON .000
RUDDER .000



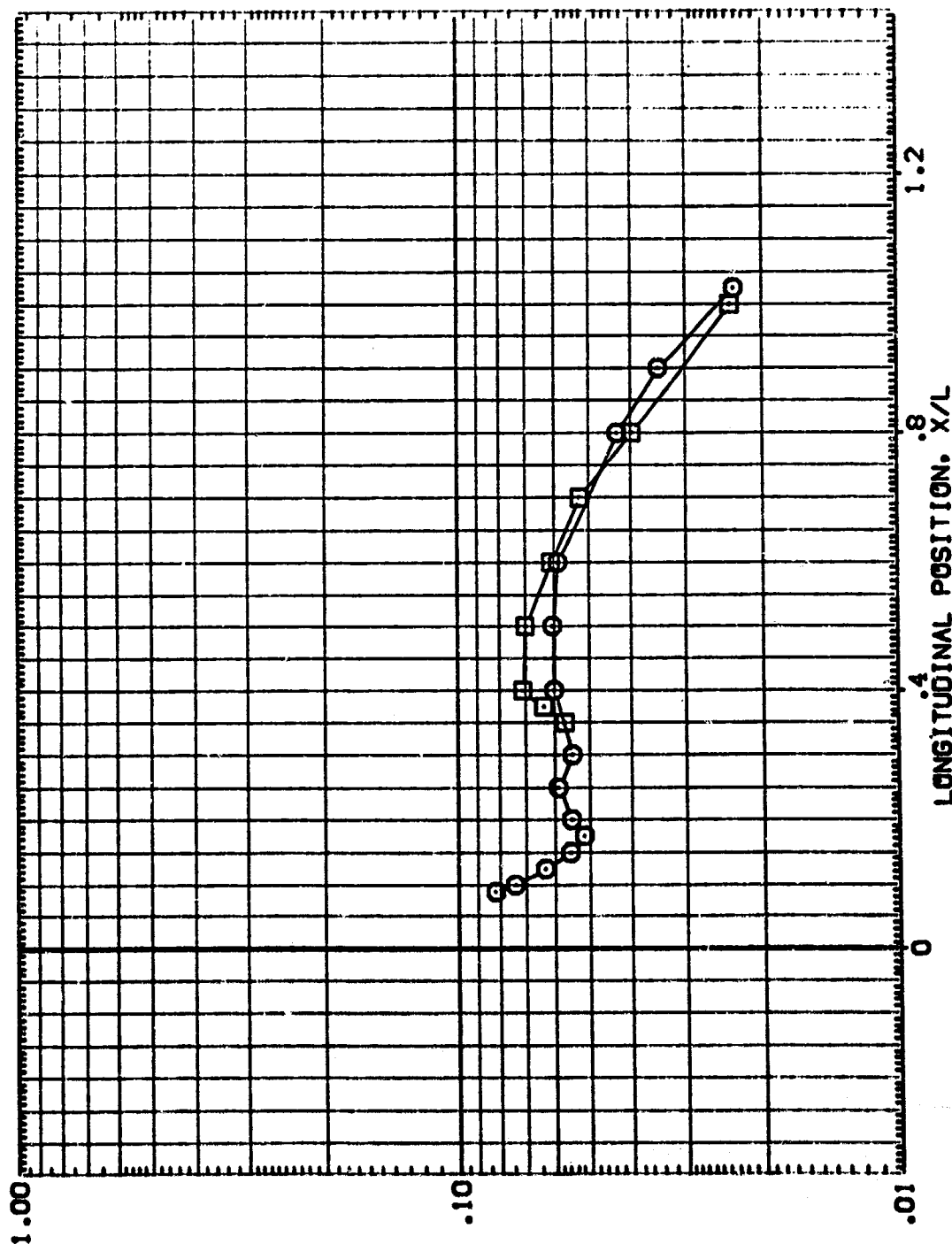
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

CH13 810C5W8707F4M3V5

(BP00003)

SYGOL VIBP) MAX/MT RW/L
0 .000 1.00 1.000
1 70.000

PARAMETRIC VALUES
MACH 8.000 ALPHA 35.000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LONGITUDINAL POSITION, X/L
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

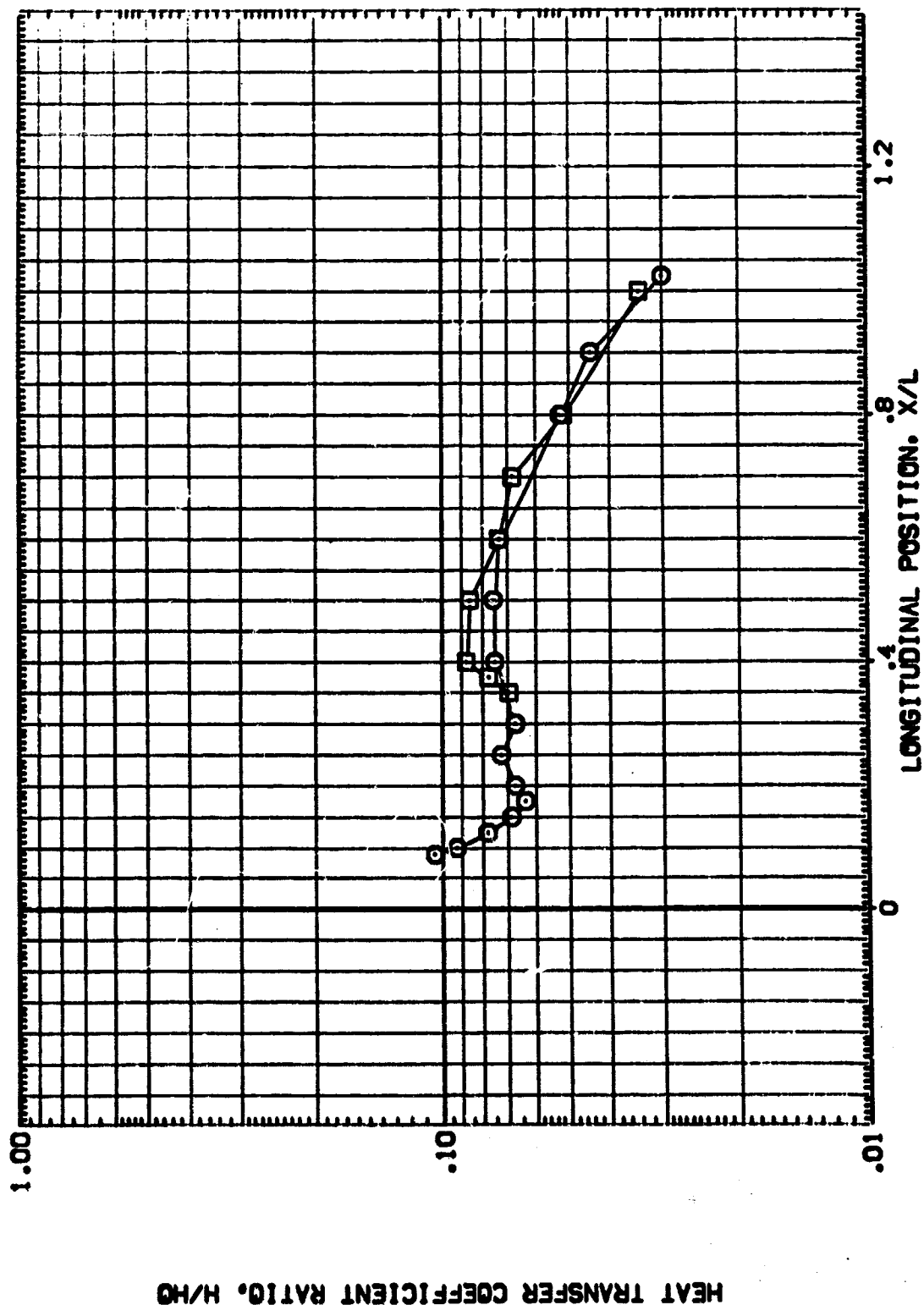
0H13 B10C5W87D7F4M3V5

(BP00003)

SYMBOL
□

V(EP) 70.000
WAV/AT .000
RVL 2.000

PARAMETRIC VALUES
MACH 9.000 ALPHA 35.000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

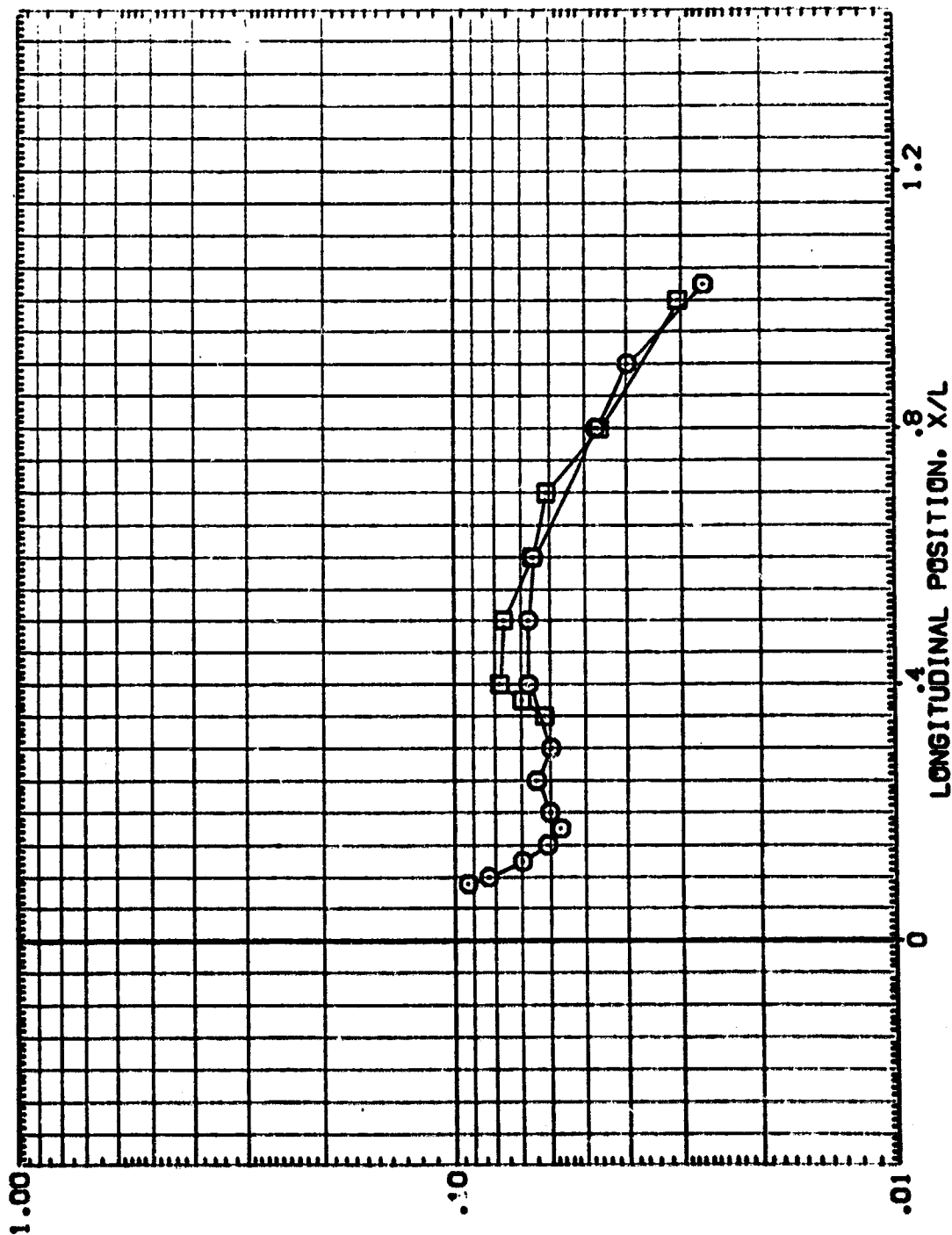
OH13 B10C5W87D7F4M3V5

(BP00003)

SYMBOL
□ ○

Y(BP) .000 70.000
WAV/NT .000 2.000
RV/L

PARAMETRIC VALUES
MACH .000 35.000
BETA .000
ELEVON .000
RUDDER



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



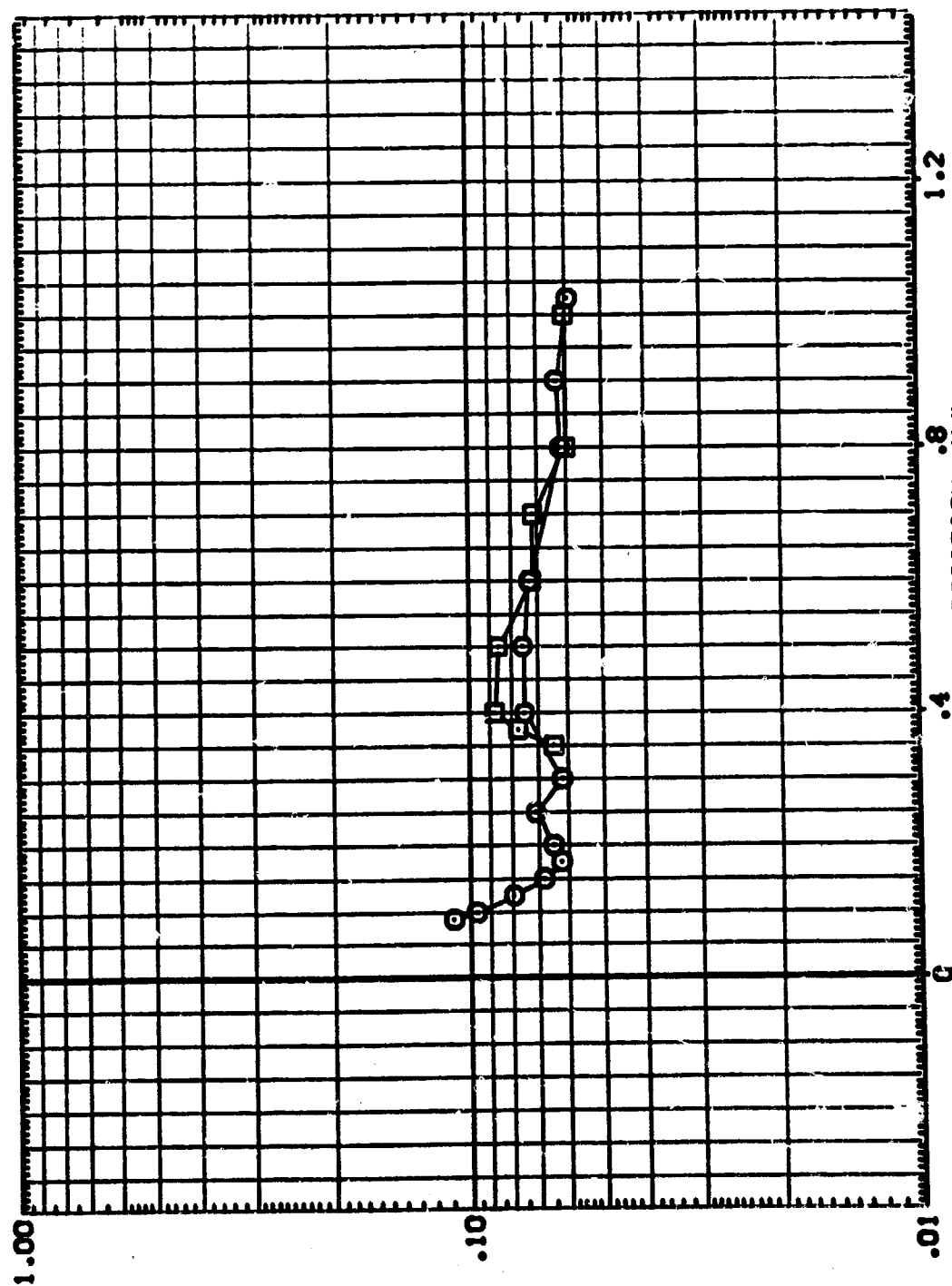
0H13 B10C5W87D7F4M3V5

(BP00003)

SYMBOL
□ ○

Y(BP) .000 .000 .000
WAV/AT .050 .050 .050
RVL 3.000

PARAMETRIC VALUES
MACH 9.000 ALPHA 35.000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER EDDY

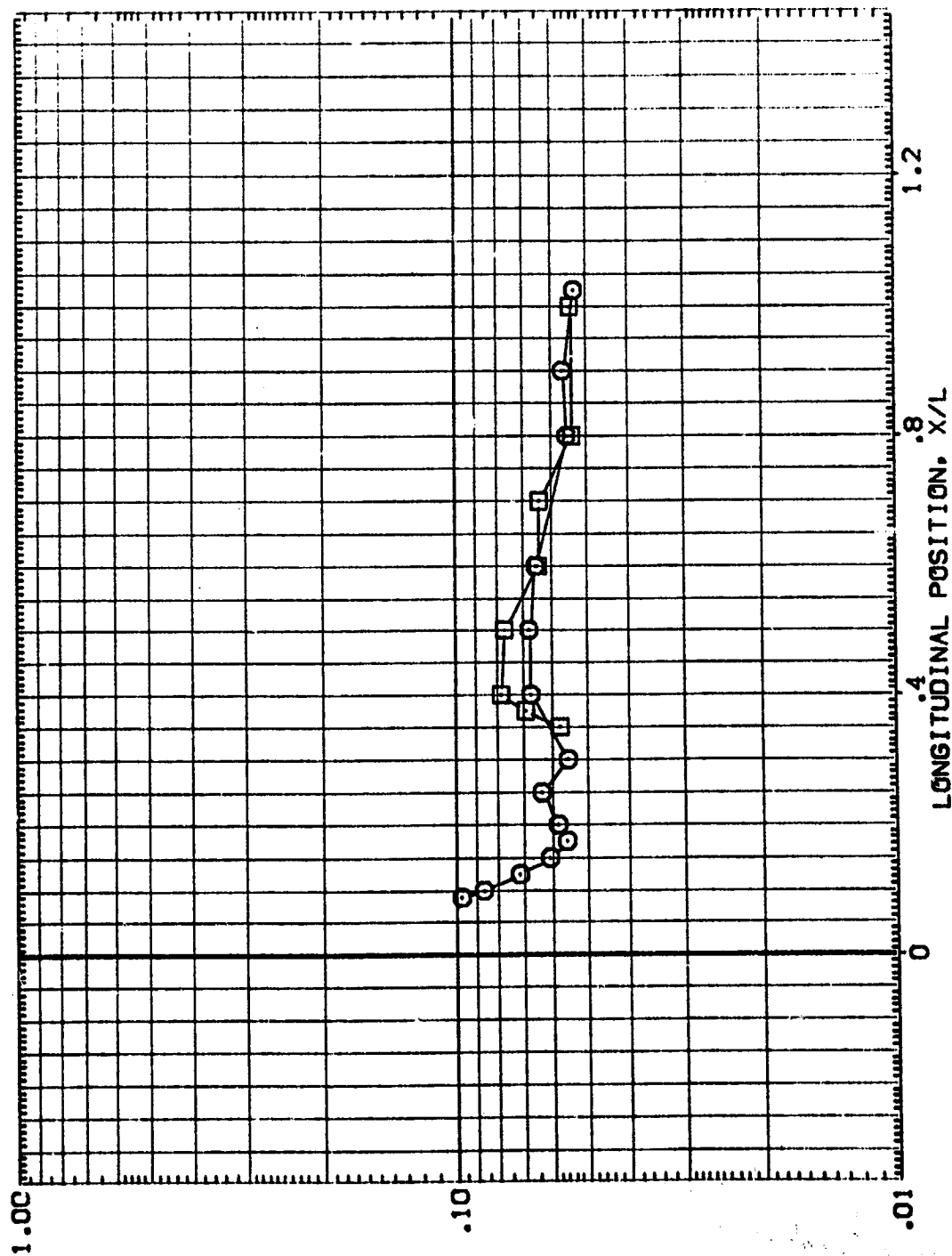
0H13 B10C5W87D7F4M3V5

(BP00003)

SYMBOL
○ □

Y(BP) 70.000
H/W/HT 1.000
R/L 3.000

PARAMETRIC VALUES
MACH 8.000 ALPHA 35.000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H₀

LONGITUDINAL POSITION, X/L
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



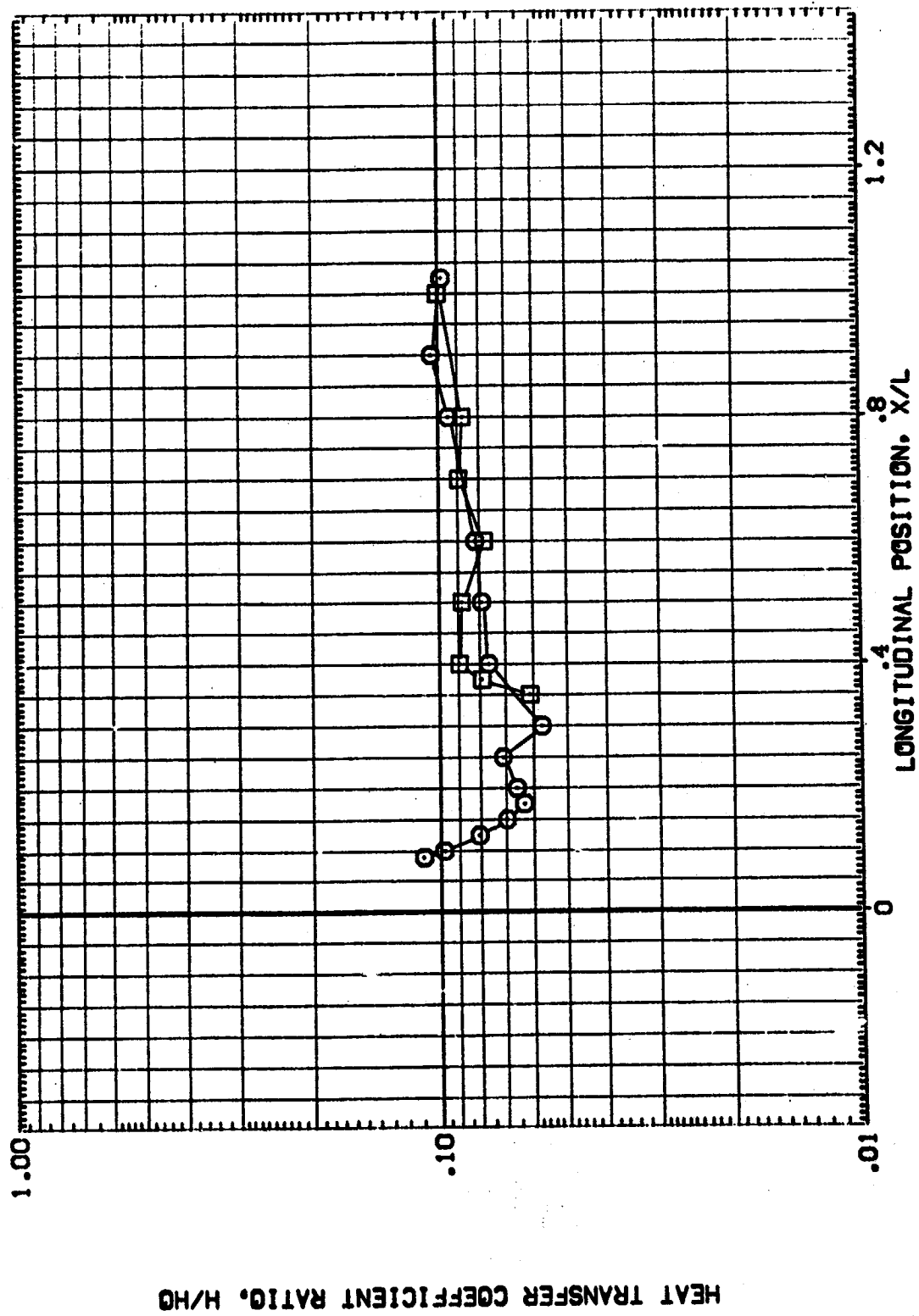
0H13 B10C5W87D7F4M3V5

(BP00003)

SYMBOL □

Y(BP) .000
HAW/HT .850
RW/L 4.000

PARAMETRIC VALUES
MACH 8.000
BETA .000
ELEVON .000
RUDDER .000
ALPHA 35.000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

OH13 B10C5W8707F4M3V5

(BP00003)

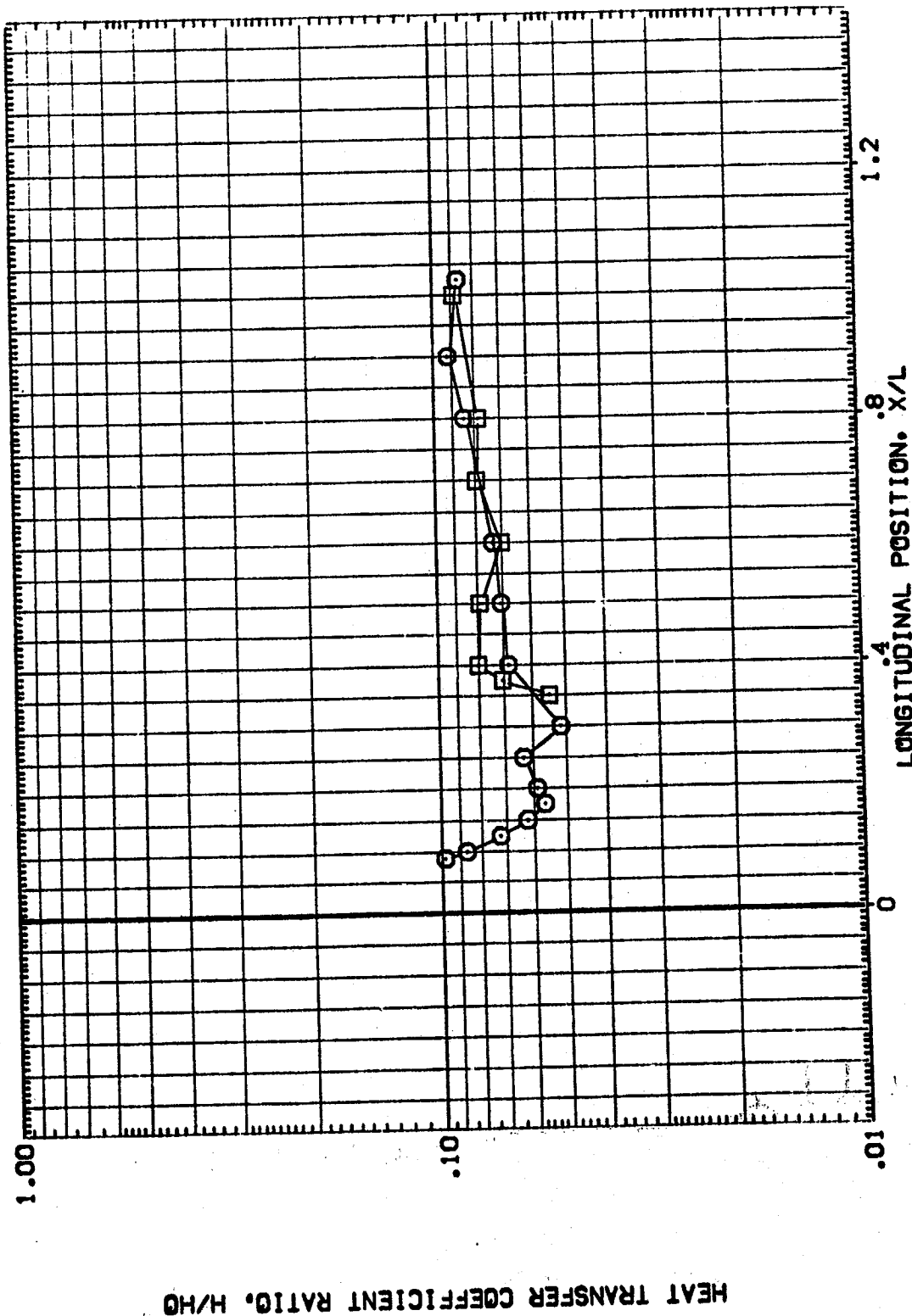
SYMBOL
 ○
 □

Y(BP)
 .000
 70.000

HAV/HT
 1.000

RV/L
 4.000

PARAMETRIC VALUES
 MACH 8.000 ALPHA 35.000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

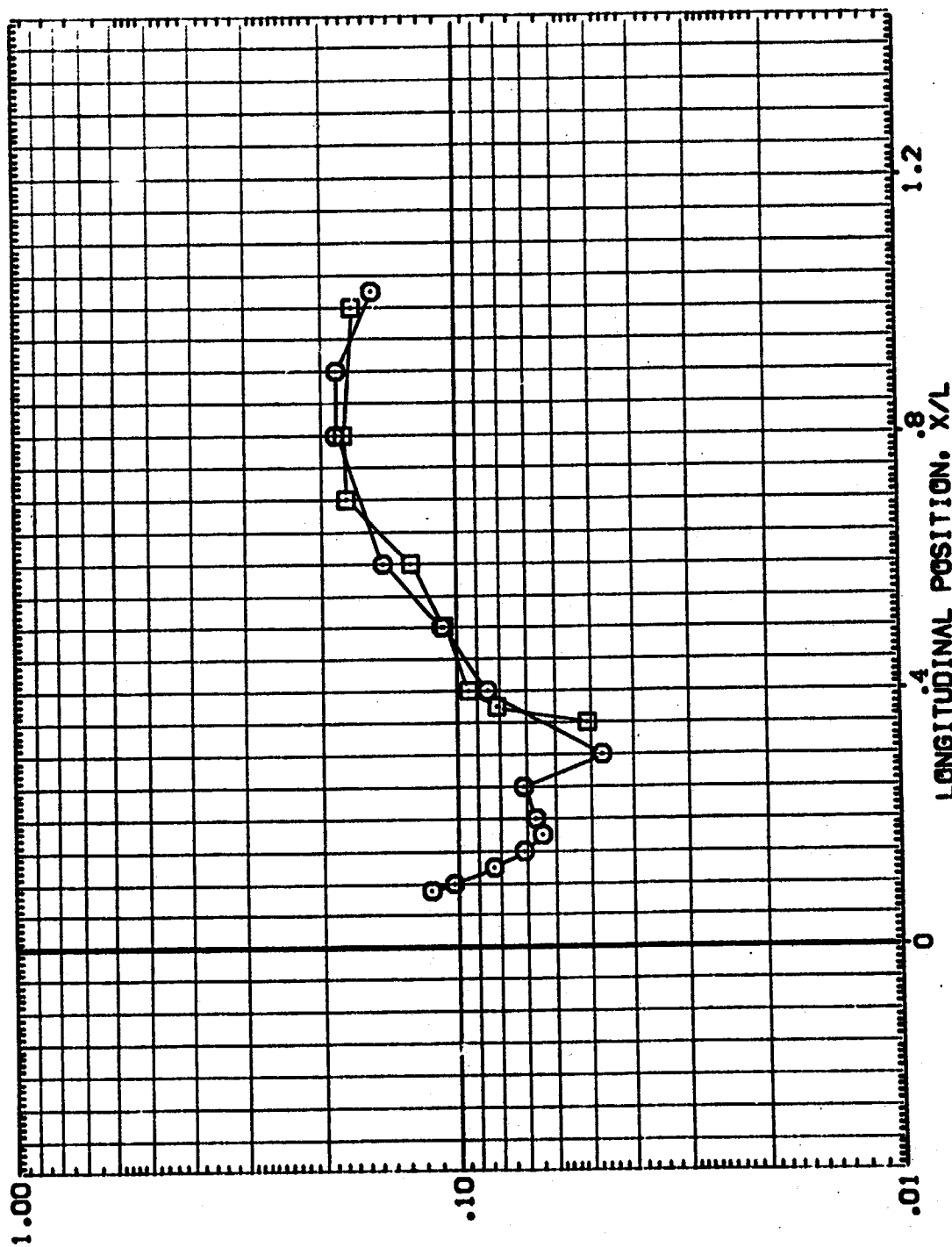
OH13 B10C5W87D7F4M3V5

(BP00003)

SYMBOL
□ ○

Y(BP) .000
70.000
NAV/MT .850
RN/L 6.000

PARAMETRIC VALUES
MACH 8.000
BETA .000
RUDDER .000
ALPHA 35.000
ELEVON .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LONGITUDINAL POSITION, X/L
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

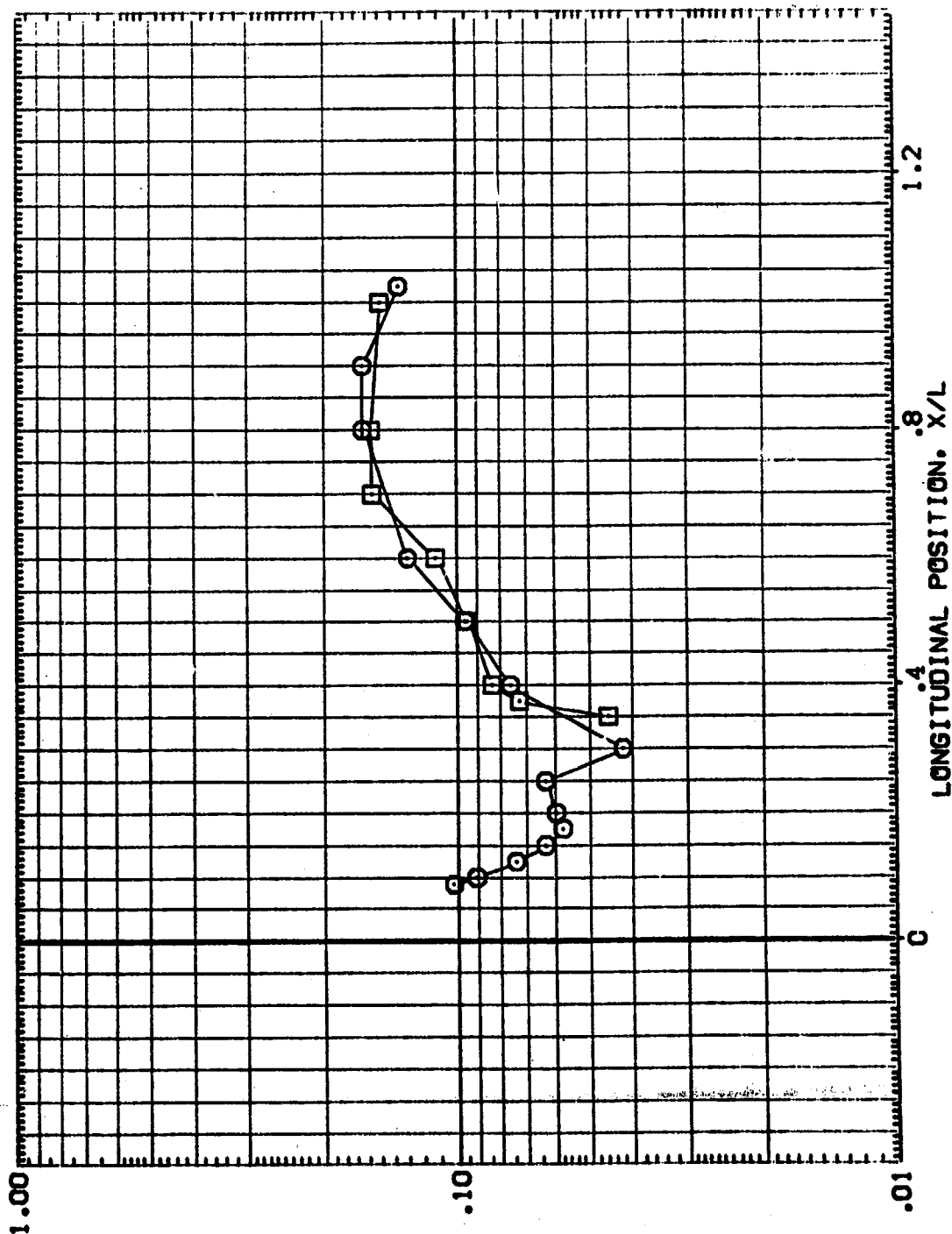
0H13 B10C5W87D7F4M3V5

(BP00003)

SYMBOL
□
○

Y(BP) 70.000
MAY/AT 1.000
RVL 6.000

PARAMETRIC VALUES
MACH 8.000
BETA .000
RUDDER .000
ALPHA 35.000
ELEVON .000



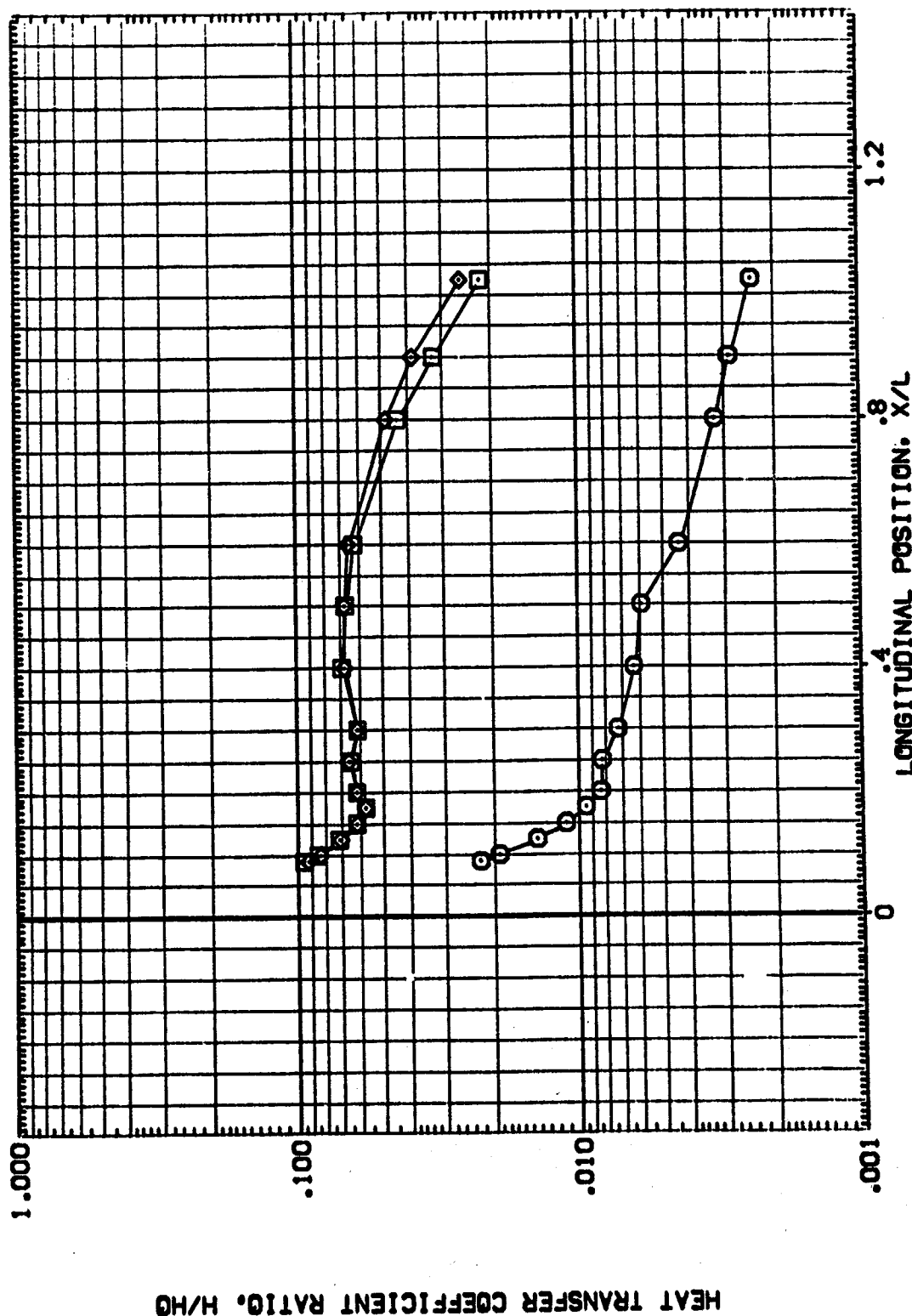
HEAT TRANSFER COEFFICIENT RATIO, H/H0

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (BP0001) 0413 810CS46707F-43VS
 (BP0002) 0413 810CS46707F-43VS
 (BP0003) 0413 810CS46707F-43VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 20.000 .000 .000 .000
 35.000 .000 .000 .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

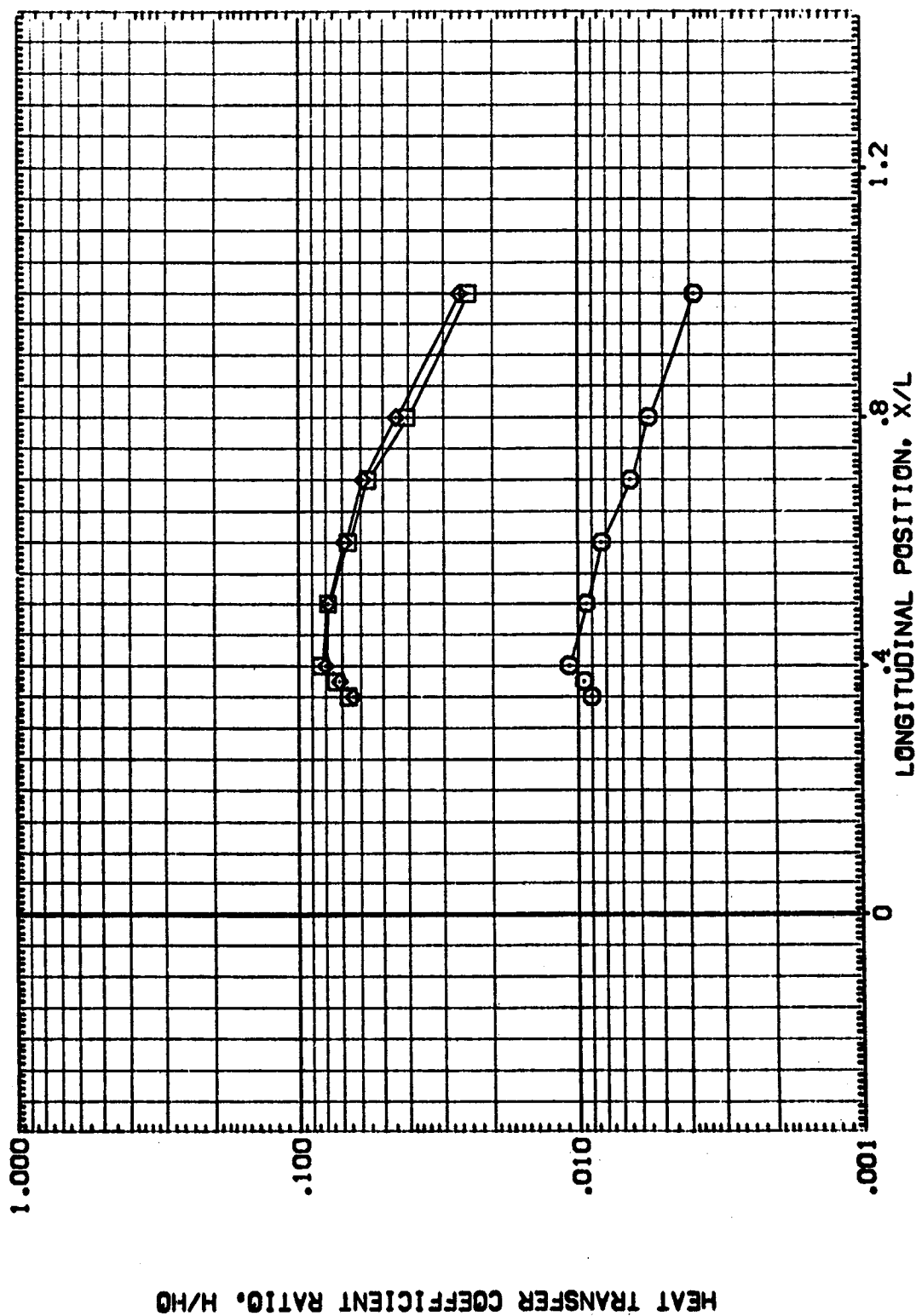
RN/L = 1.000 HAW/HT = .850 Y(BP) = .000



0

DATA SET SYMBOL. CONFIGURATION DESCRIPTION
[BP0001] 0413 810CS48707F-43VS
[BP0002] 0413 810CS48707F-43VS
[BP0003] 0413 810CS48707F-43VS

ALPHA ELEVON BETA RUDDER
.000 .000 .000 .000
30.000 .000 .000 .000
36.000 .000 .000 .000

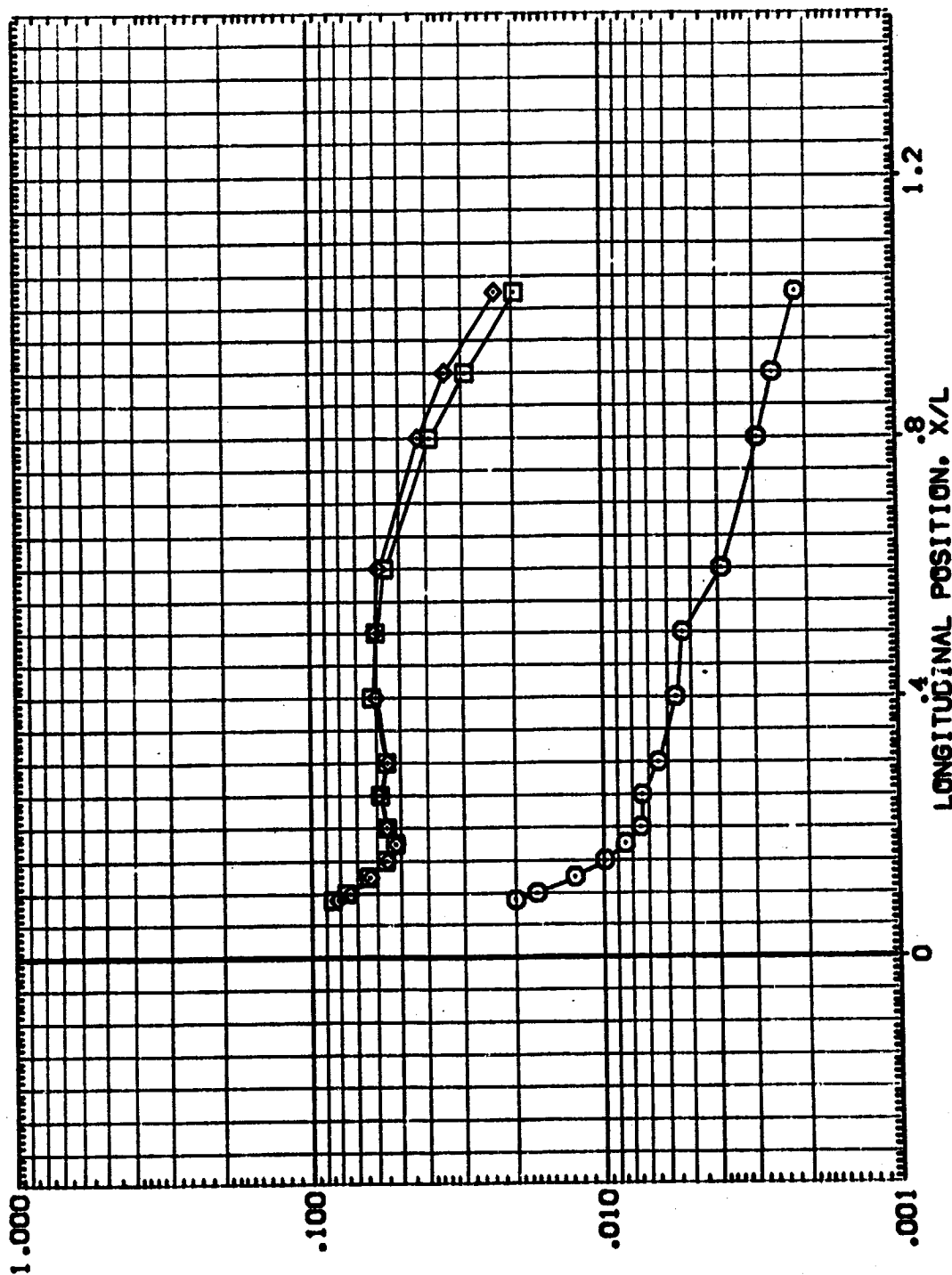


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

$RN/L = 1.000$ $HAW/HT = .850$ $Y(BP) = 70.000$

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {BP0001} OH13 B10CS48707F-4GVS
 {BP0002} OH13 B10CS48707F-4GVS
 {BP0003} OH13 B10CS48707F-4GVS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

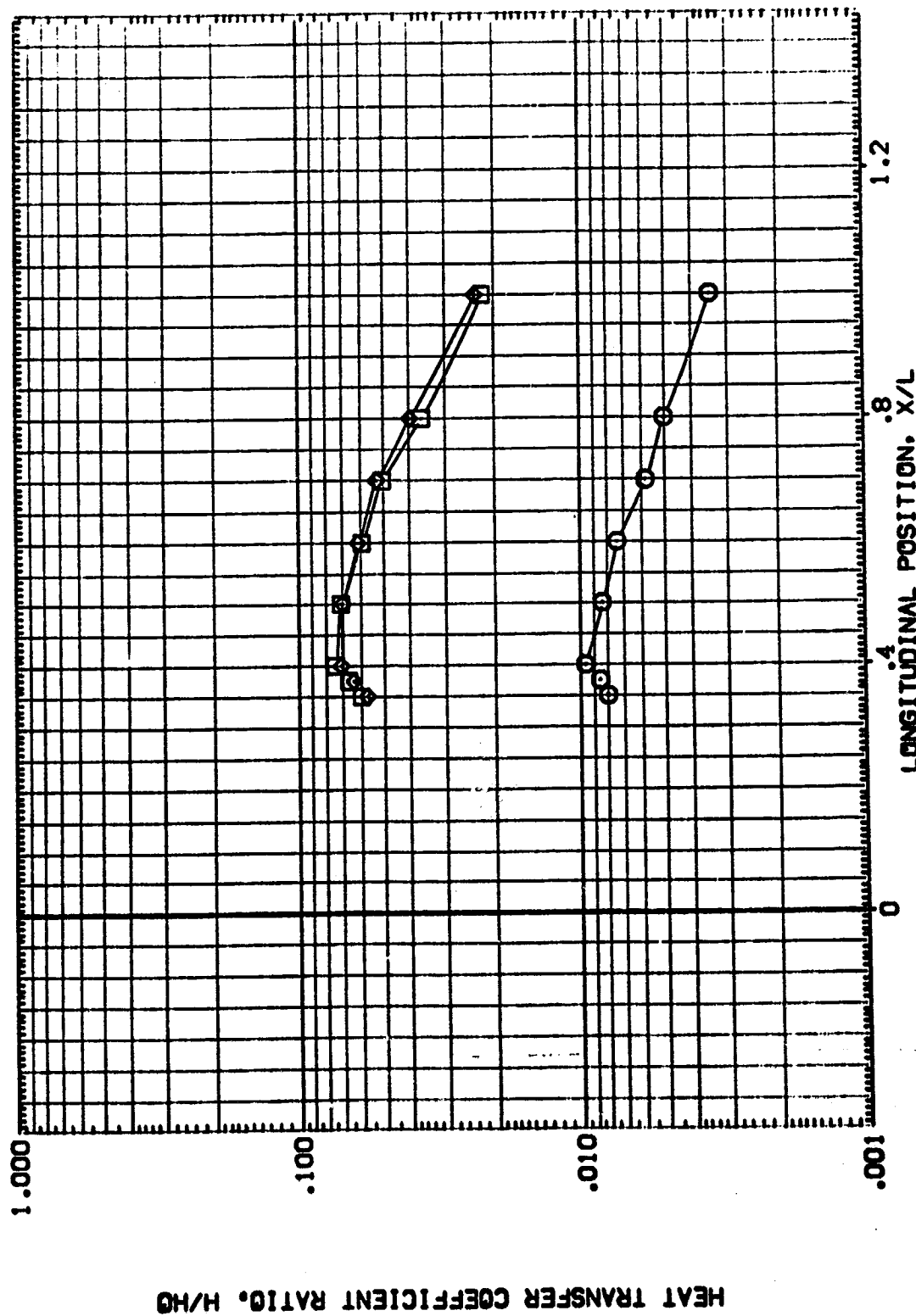
LONGITUDINAL POSITION, X/L

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 1.000 HAW/HT = 1.000 Y(BP) = .000

DATA SET SYMBOL. CONFIGURATION DESCRIPTION
 (BP0001) 0-13 8103-6707-43GVS
 (BP0002) 0-13 8103-6707-43GVS
 (BP0003) 0-13 8103-6707-43GVS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000



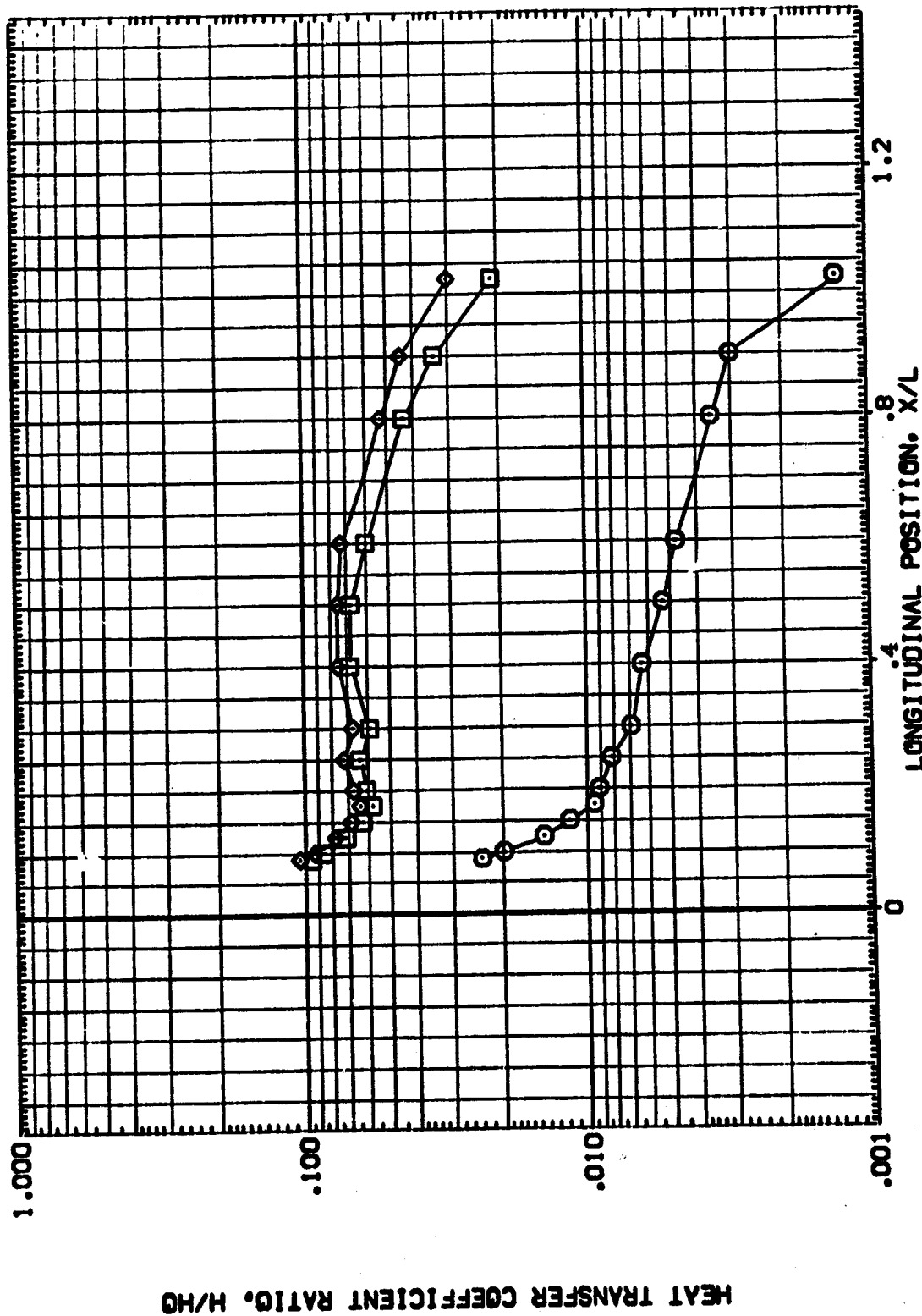
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 1.000 HAW/HT = 1.000 Y(BP) = 70.000



DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (BP0001)  D-13 B10CS6707F-43VS
 (BP0002)  D-13 B10CS6707F-43VS
 (BP0003)  D-13 B10CS6707F-43VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 20.000 .000 .000 .000
 25.000 .000 .000 .000

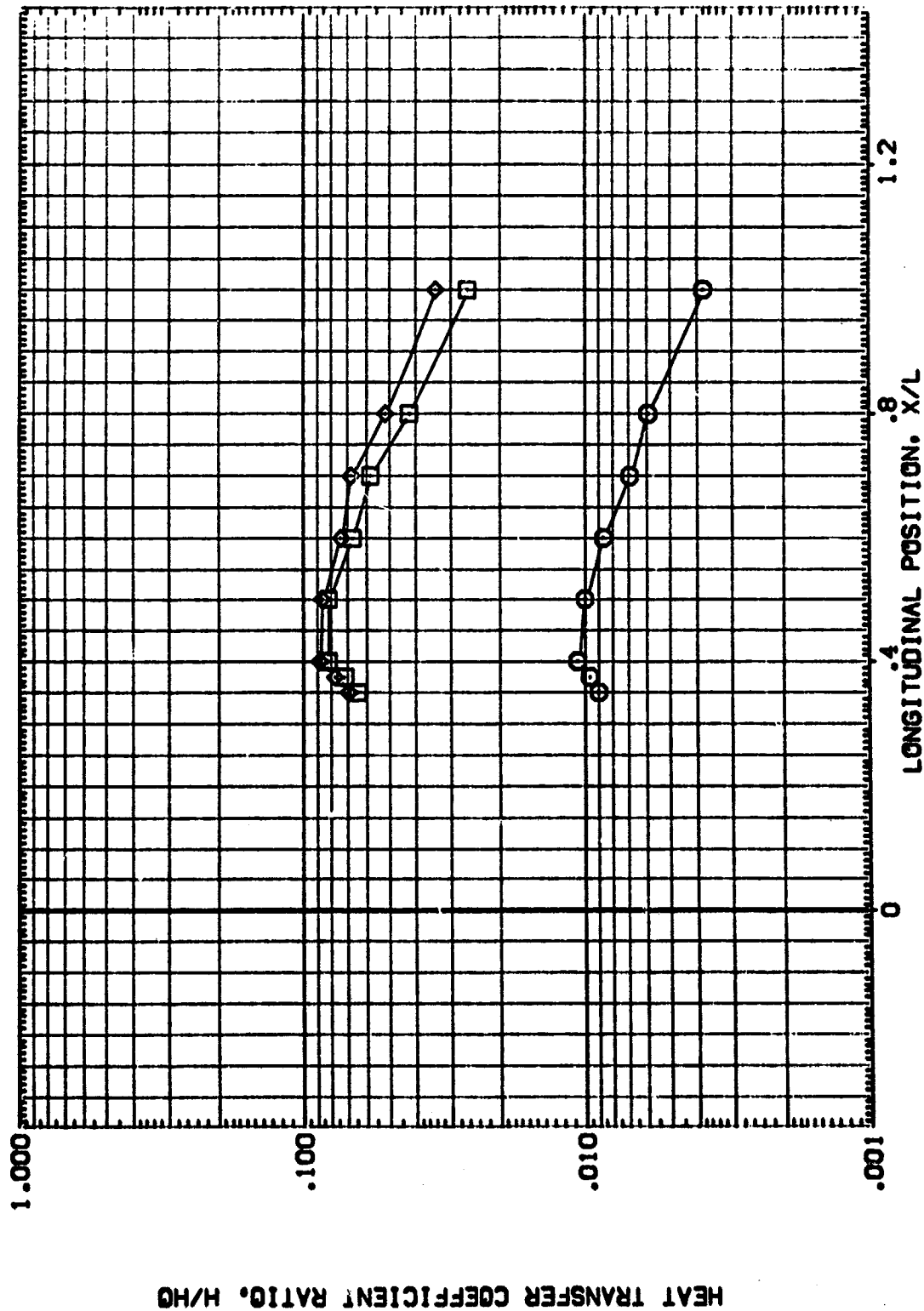


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 2.000 HAW/HT = .850 Y(BP) = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (B*0001) Q 0413 810256707F4GVS
 (B*0002) Q 0413 810256707F4GVS
 (B*0003) Q 0413 810256707F4GVS

ALPHA ELEV01 BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000



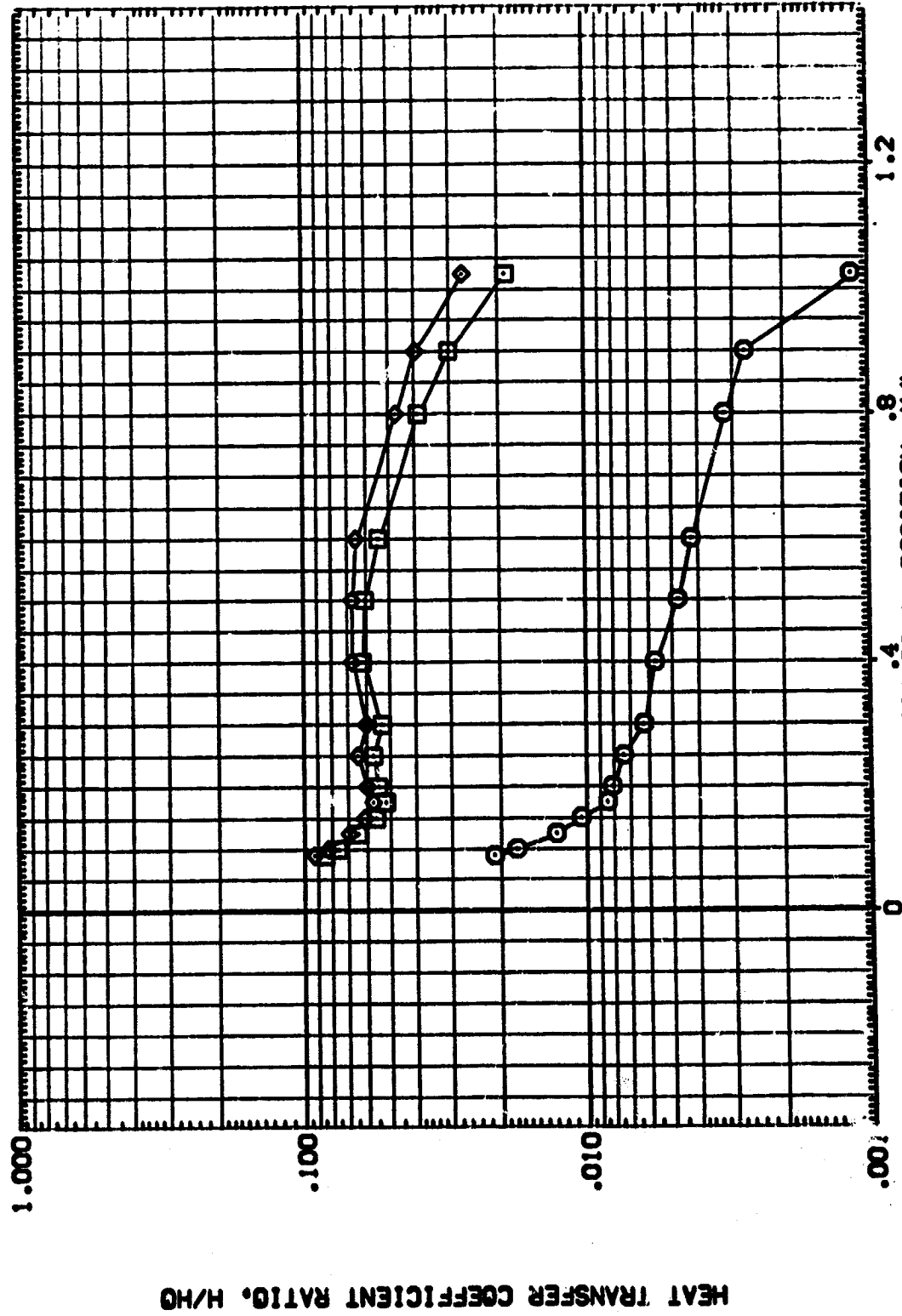
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 2.000 HAW/HT = .850 Y(BP) = 70.000



DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {SP0001} 0413 8103567077-4035
 {SP0002} 0413 8103567077-4035
 {SP0003} 0413 8103567077-4035

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000

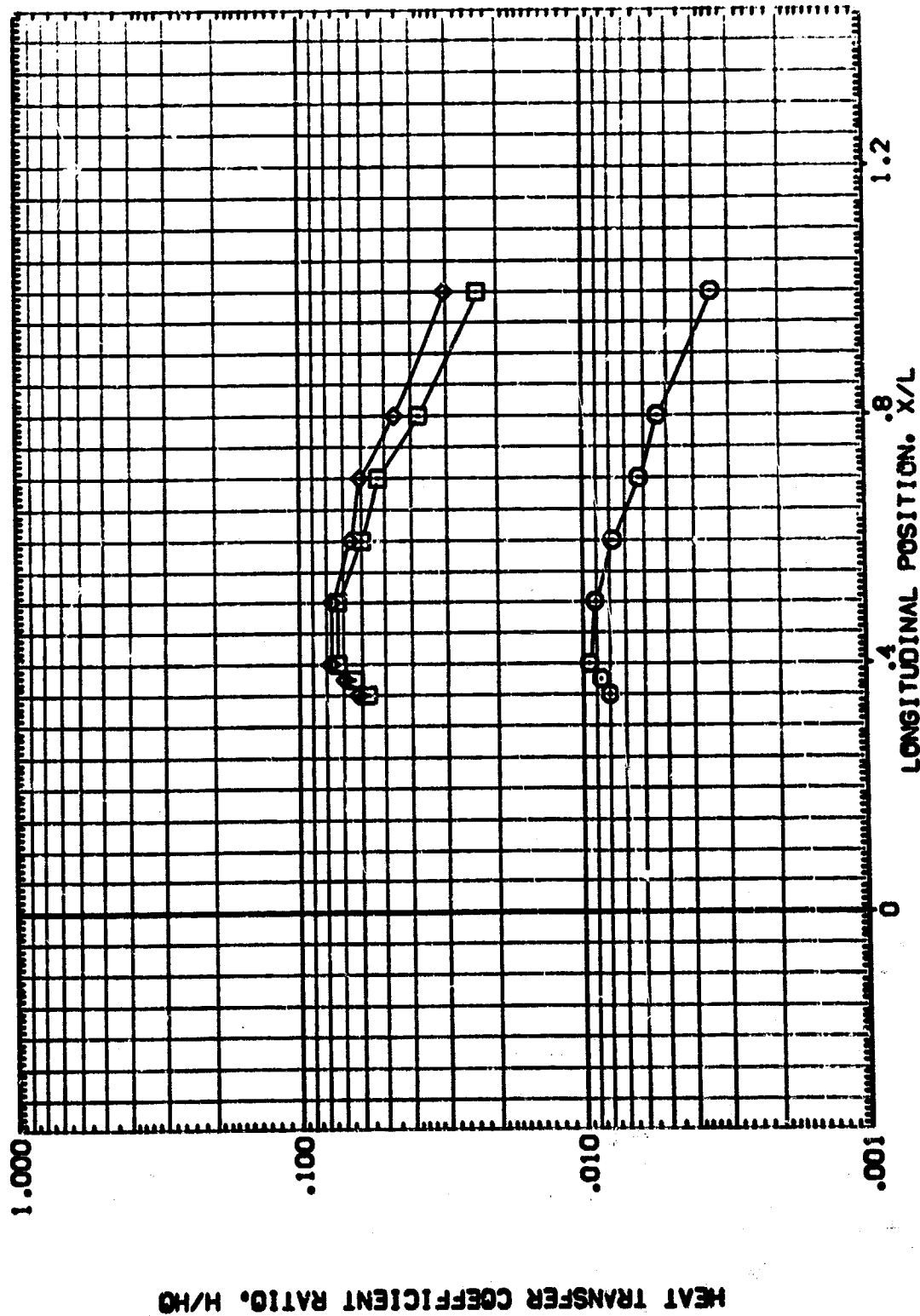


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 2.000 HAW/HT = 1.000 Y(BP) = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 013 810256707F-00VS
 013 810256707F-00VS
 013 810256707F-00VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000



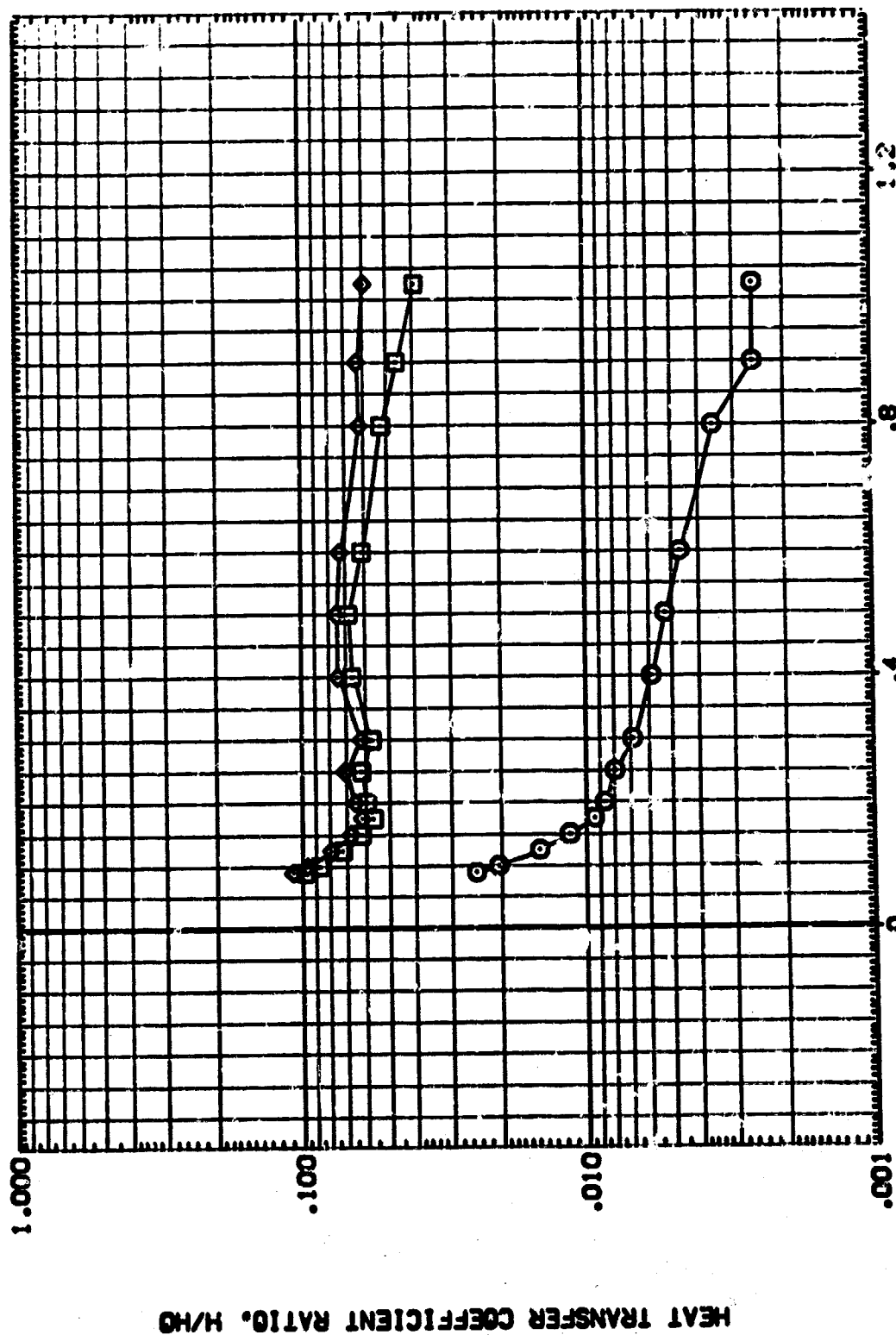
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L :: 2.000 HAV/HT= 1.000 Y(BP) = 70.000



DATA SET SYNO. CONFIGURATION DESCRIPTION
 {BP0001} 0113 B1023467077-4045
 {BP0002} 0113 B1023467077-4045
 {BP0003} 0113 B1023467077-4045

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

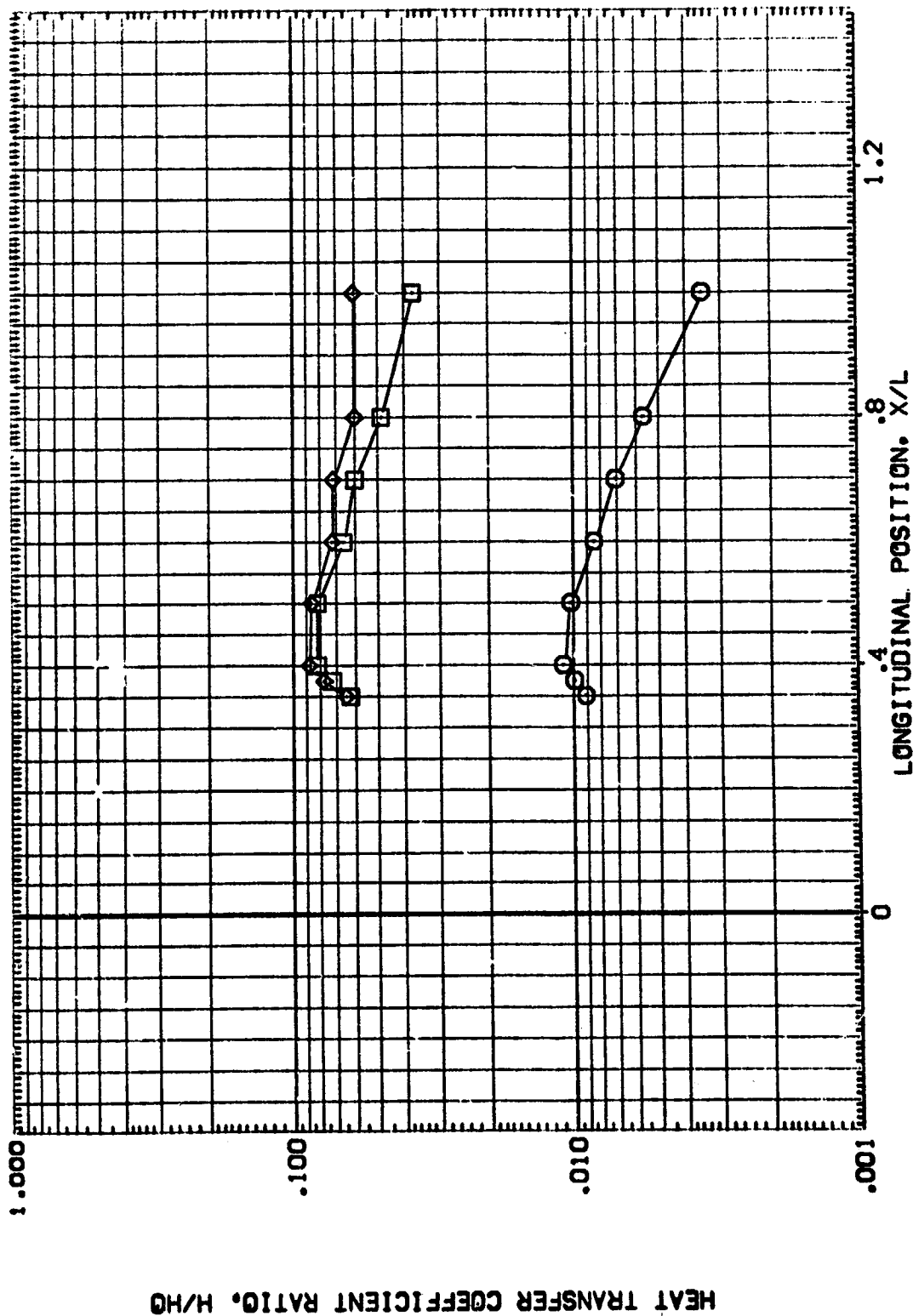


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 3.000 HAW/HT = .850 Y(BP) = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {BP0001} 0-13 81005-6707F-43VS
 {BP0002} 0-13 81005-6707F-43VS
 {BP0003} 0-13 81005-6707F-43VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

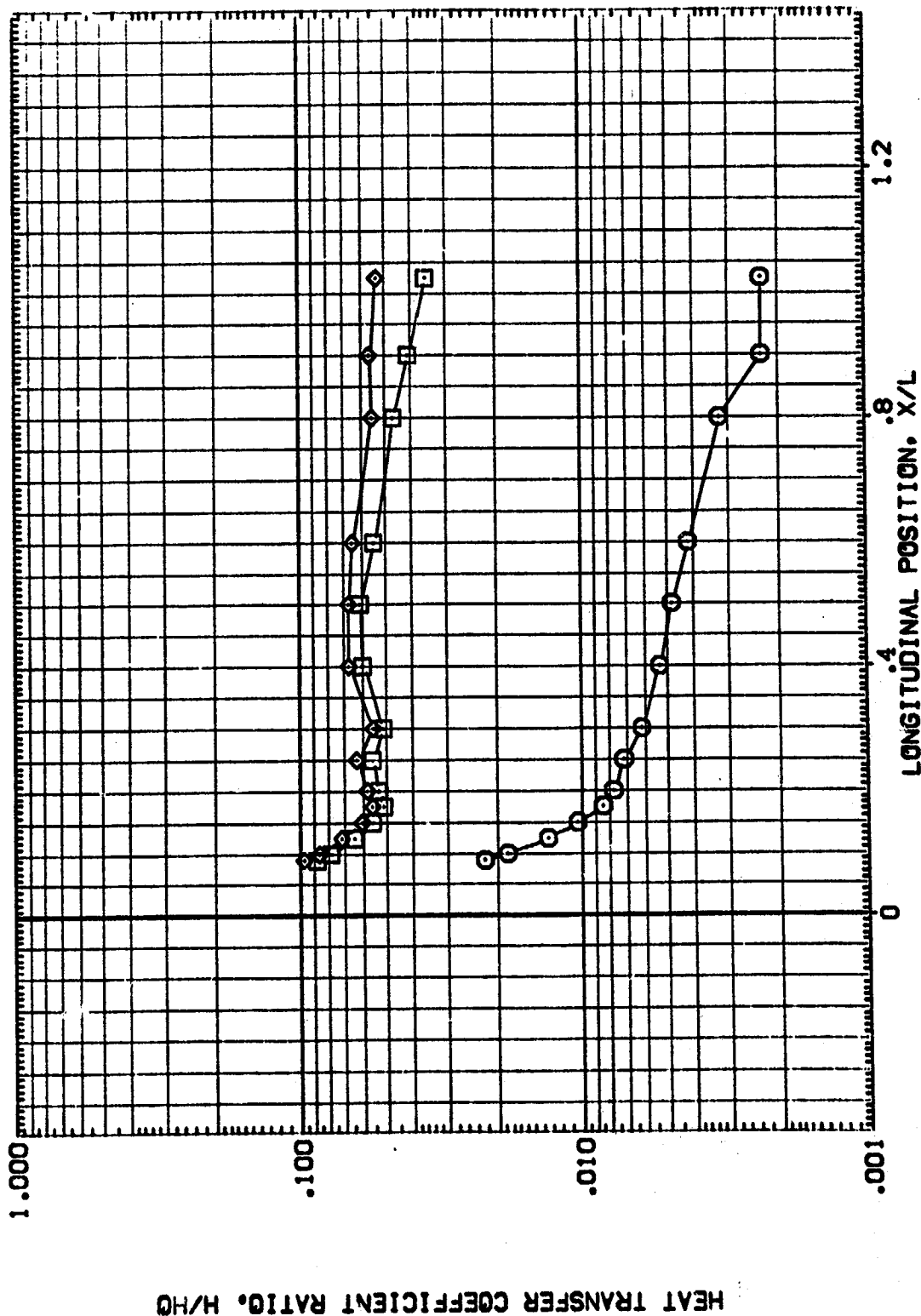


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 3.000 HAW/HT = .850 Y(BP) = 70.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {BP0001} 0-13 B10C5W8707F-4GVS
 {BP0002} 0-13 B10C5W8707F-4GVS
 {BP0003} 0-13 B10C5W8707F-4GVS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000



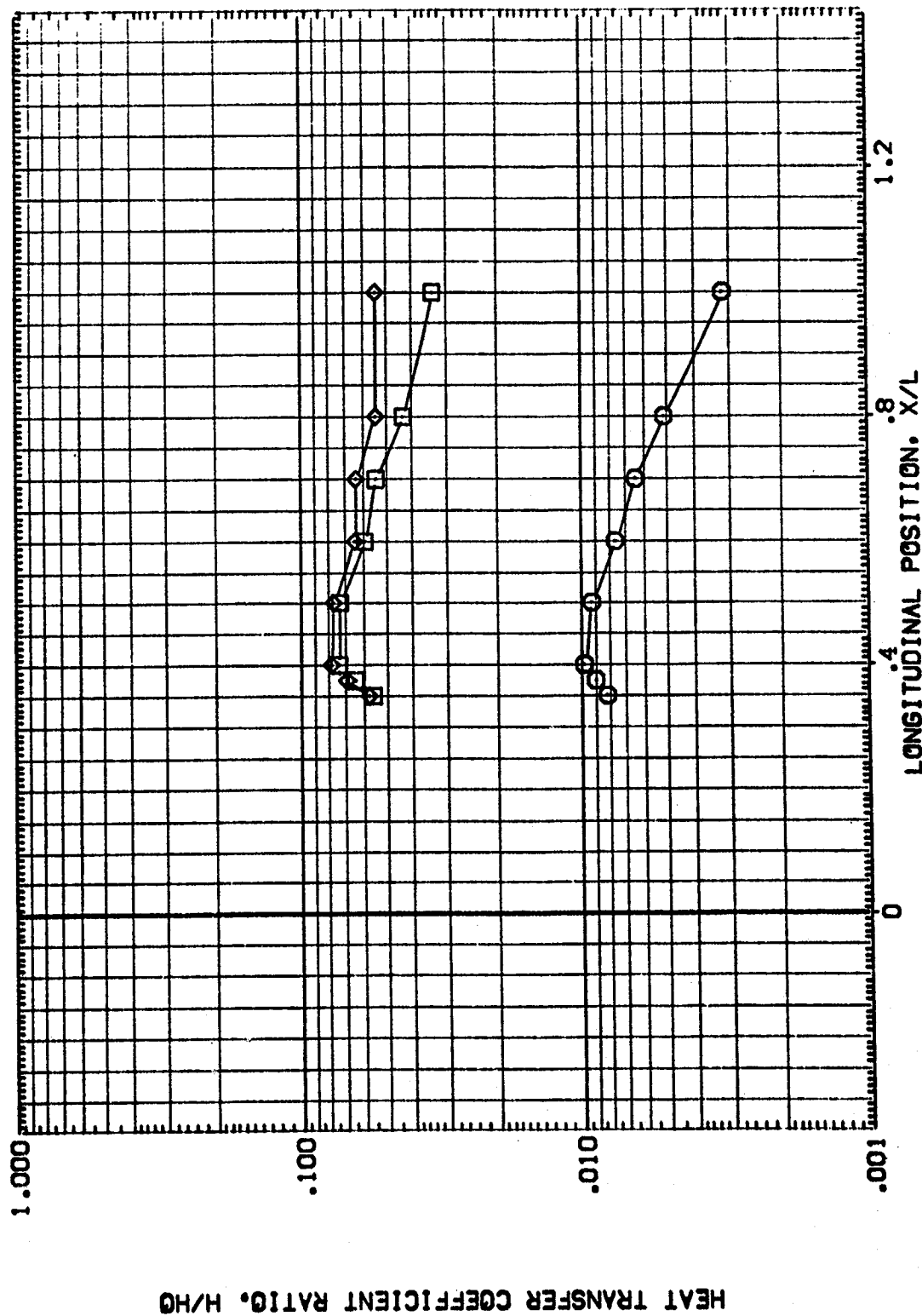
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 3.000 HAW/HT = 1.000 Y(BP) = .000



DATA SET SYMBOL CONFIGURATION DESCRIPTION
{BP0001} 0-13 810CS-8707F-413VS
{BP0002} 0-13 810CS-8707F-413VS
{BP0003} 0-13 810CS-8707F-413VS

ALPHA ELEVON BETA RUDDER
0.000 0.000 0.000 0.000
30.000 0.000 0.000 0.000
35.000 0.000 0.000 0.000

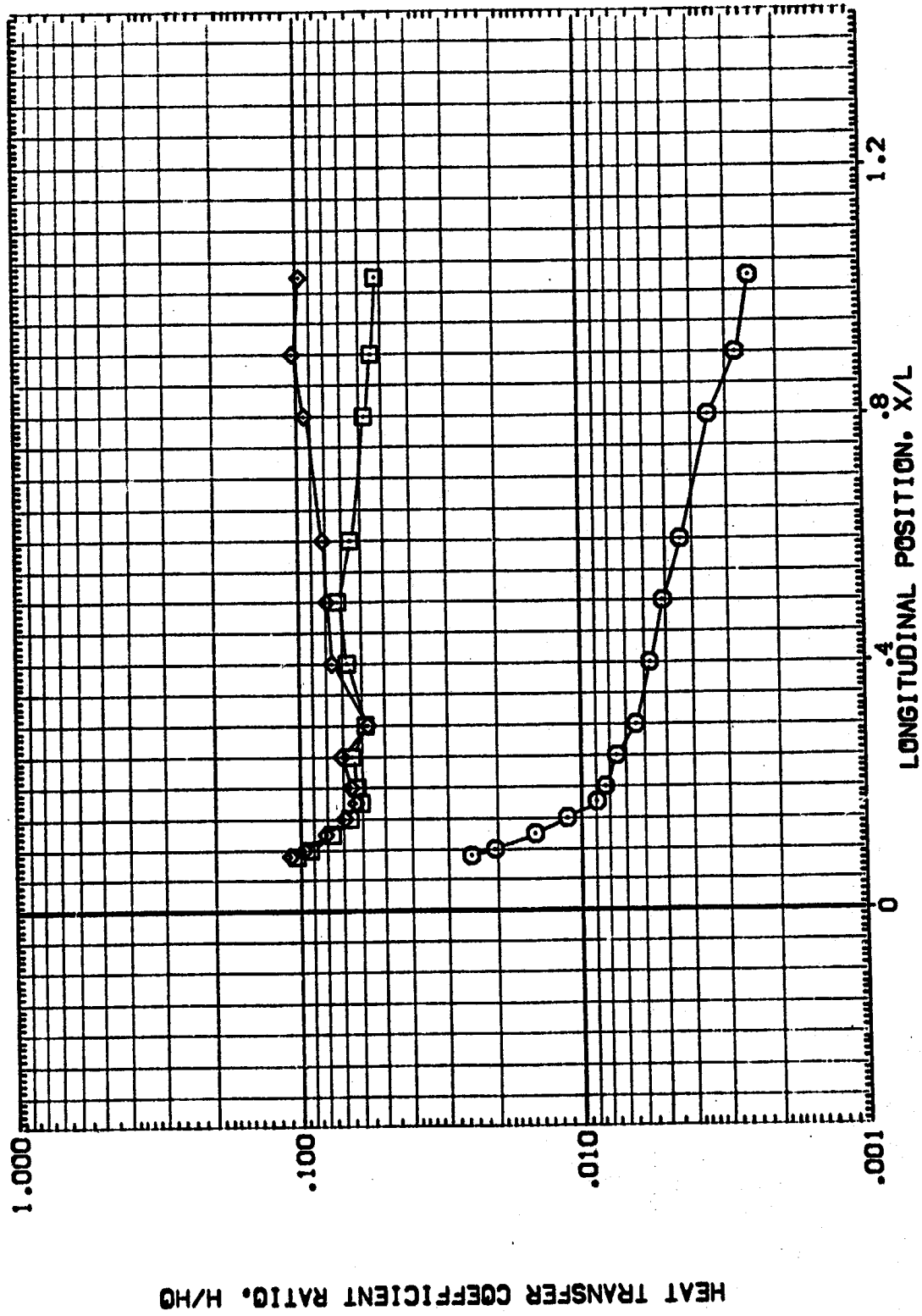


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 3.000 HAW/HT = 1.000 Y(BP) = 70.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 [BP0001] 0-13 810CSM8707F-4GVS
 [BP0002] 0-13 810CSM8707F-4GVS
 [BP0003] 0-13 810CSM8707F-4GVS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 30.000 .000 .000 .000



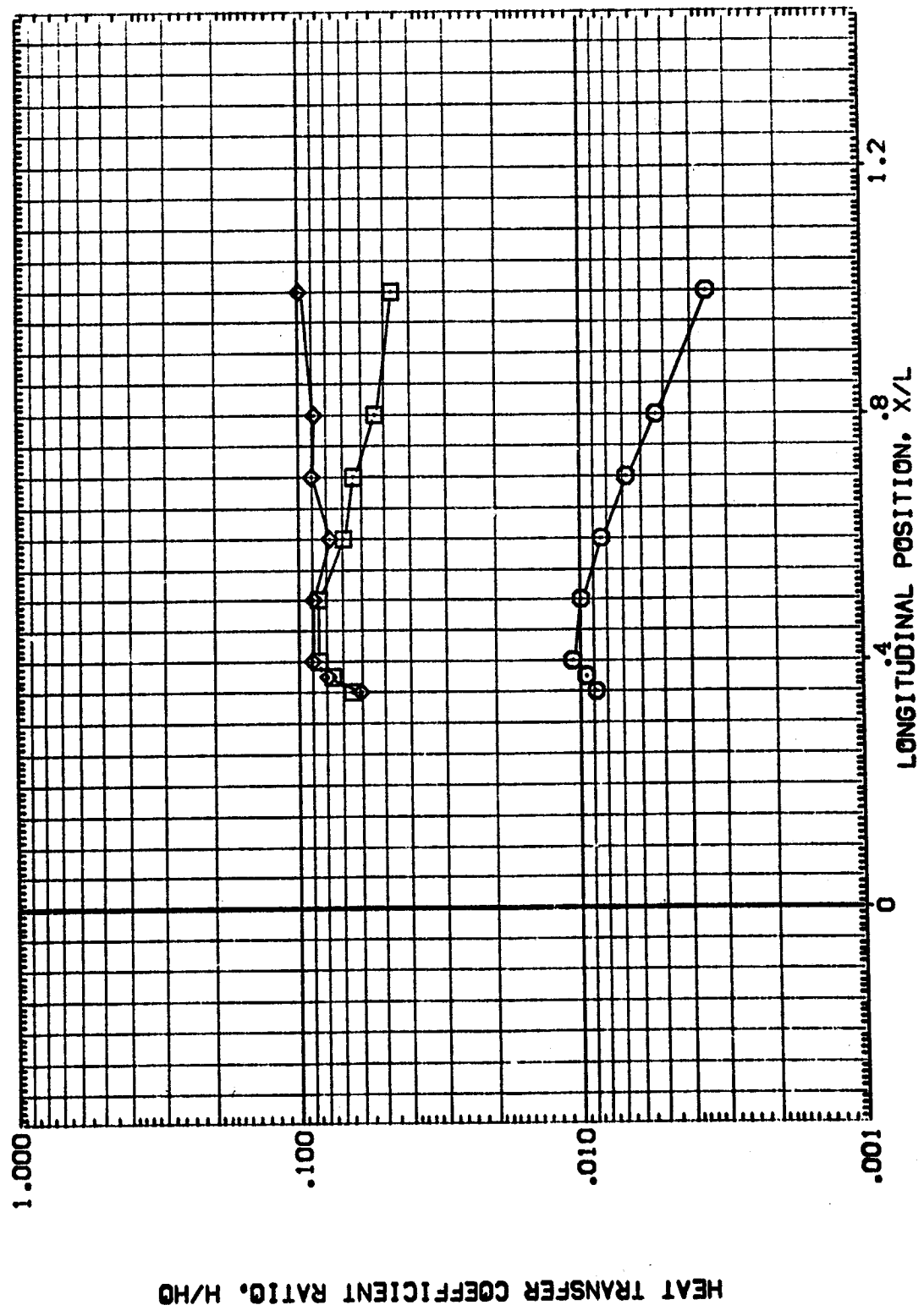
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 4.000 HAW/HT = .850 Y(BP) = .000



DATA SET SYMB. CONFIGURATION DESCRIPTION
[BP0001] 0-13 810C5M6707F-4GVS
[BP0002] 0-13 810C5M6707F-4GVS
[BP0003] 0-13 810C5M6707F-4GVS

ALPHA ELEVON BETA RUDDER
0.000 0.000 0.000 0.000
30.000 0.000 0.000 0.000
35.000 0.000 0.000 0.000

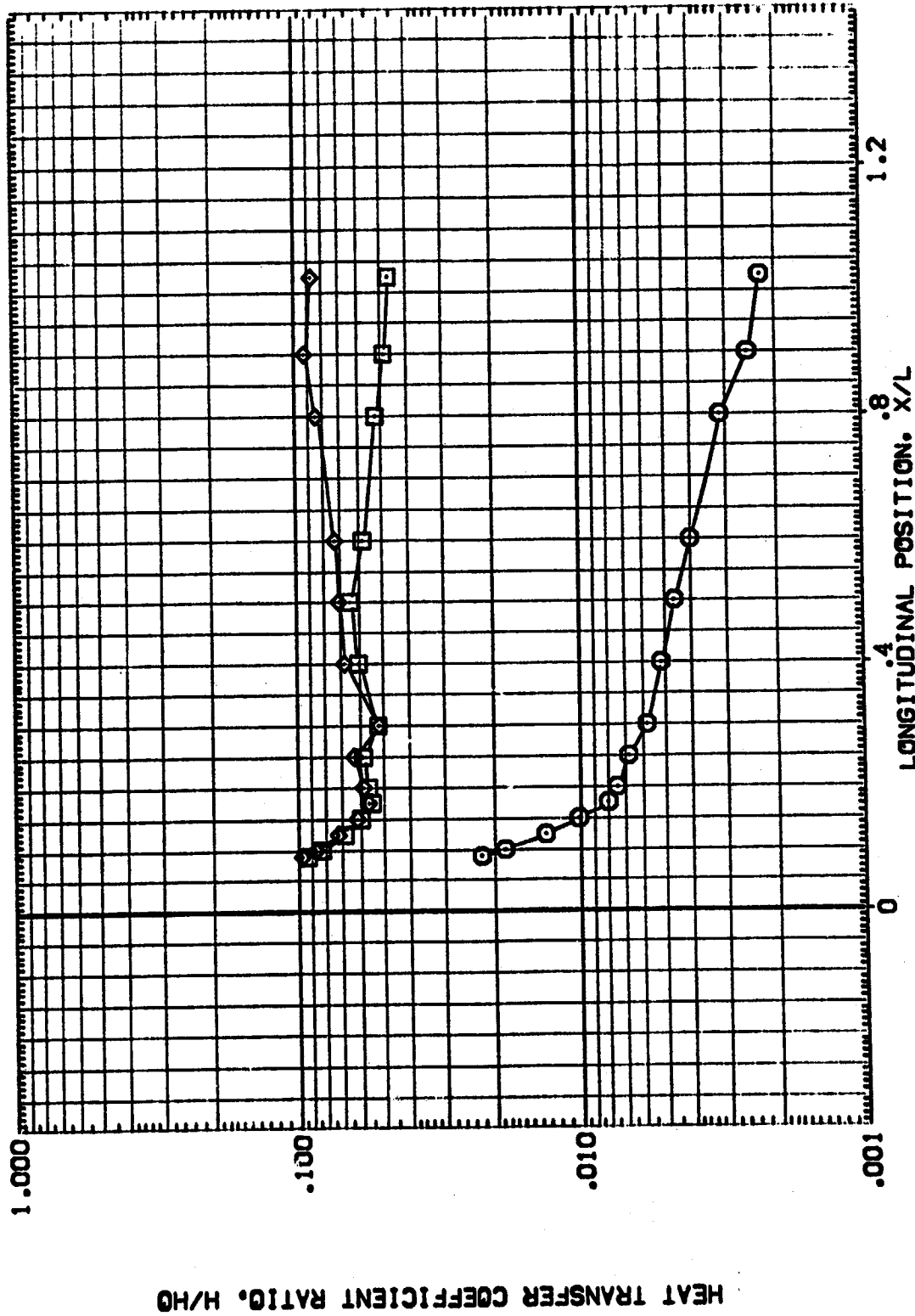


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 4.000 HAW/HT = .850 Y(BP) = 70.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 [BP0001] 0-13 810CS-87D7F-4-3VS
 [BP0002] 0-13 810CS-87D7F-4-3VS
 [BP0003] 0-13 810CS-87D7F-4-3VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

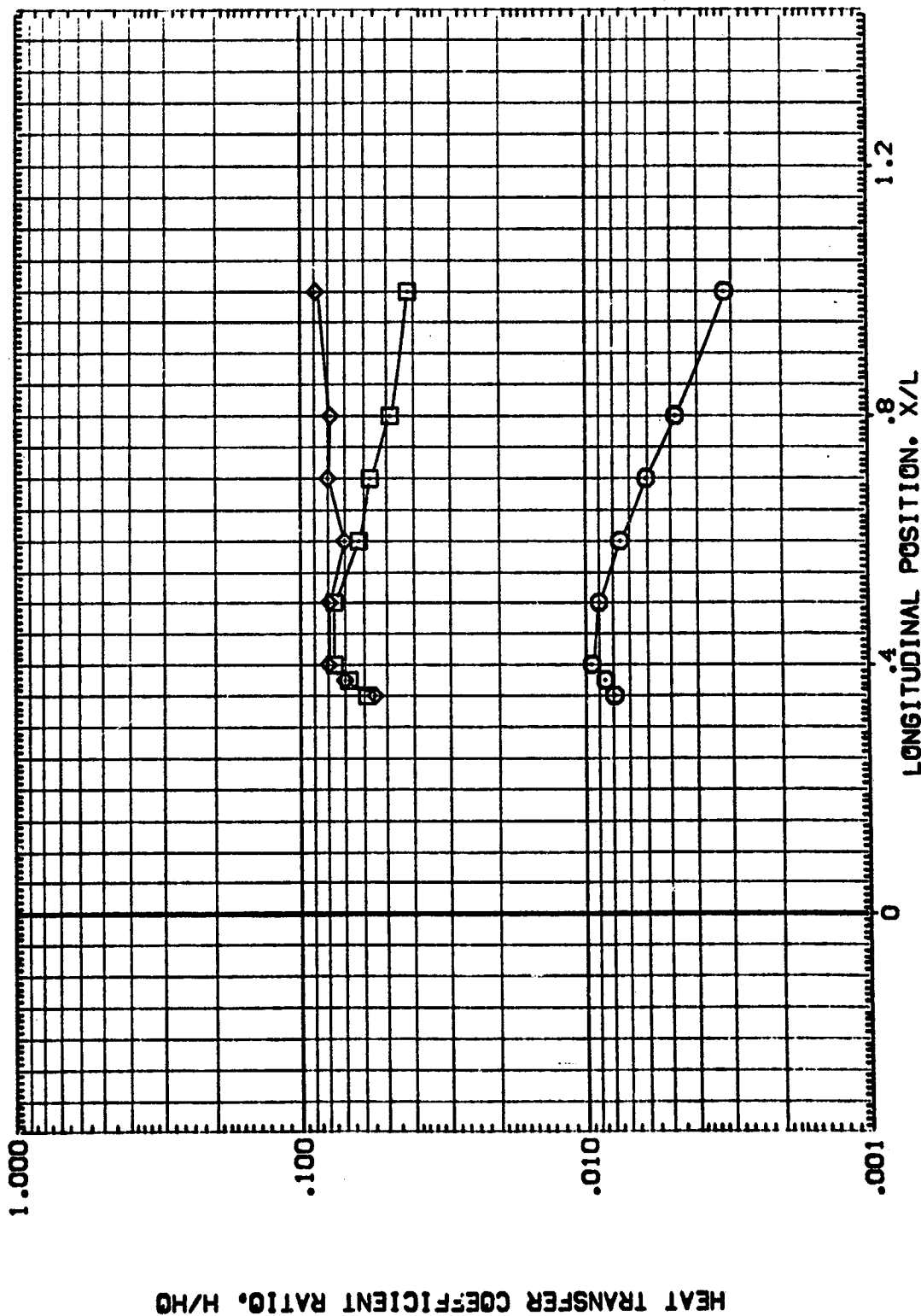


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 4.000 HAW/HT = 1.000 Y(BP) = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (BP0001) 0-13 810CS/6707F-43VS
 (BP0002) 0-13 810CS/6707F-43VS
 (BP0003) 0-13 810CS/6707F-43VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 30.000 .000 .000 .000

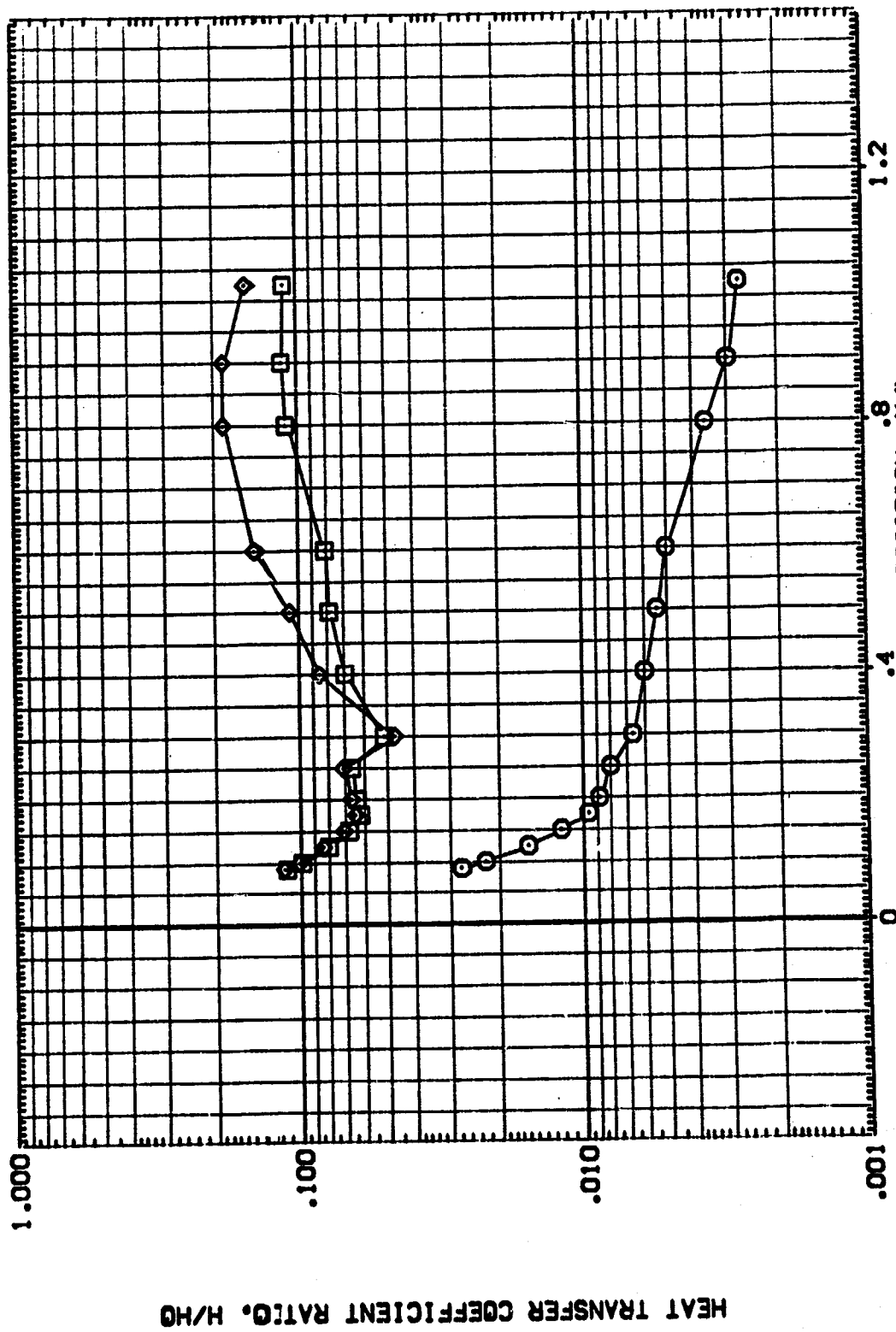


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 4.000 HAW/HT = 1.000 Y(BP) = 70.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (BP0001) Q-13 B10CSM8707F-4GVS
 (BP0002) Q-13 B10CSM8707F-4GVS
 (BP0003) Q-13 B10CSM8707F-4GVS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

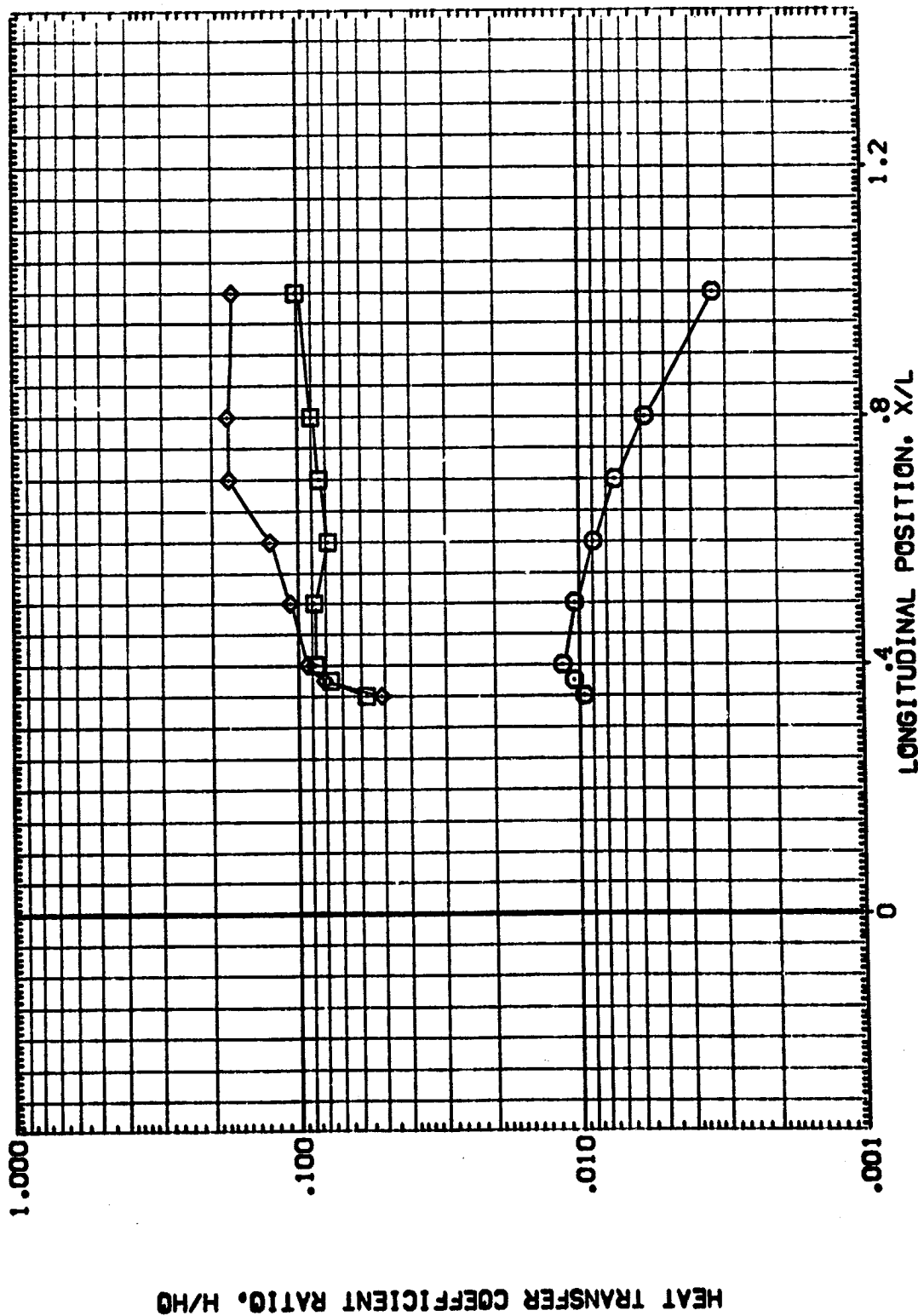


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 6.000 HAW/HT = .850 Y(BP) = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {SP0001} 0-13 810CS6707F-0GVS
 {SP0002} 0-13 810CS6707F-0GVS
 {SP0003} 0-13 810CS6707F-0GVS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

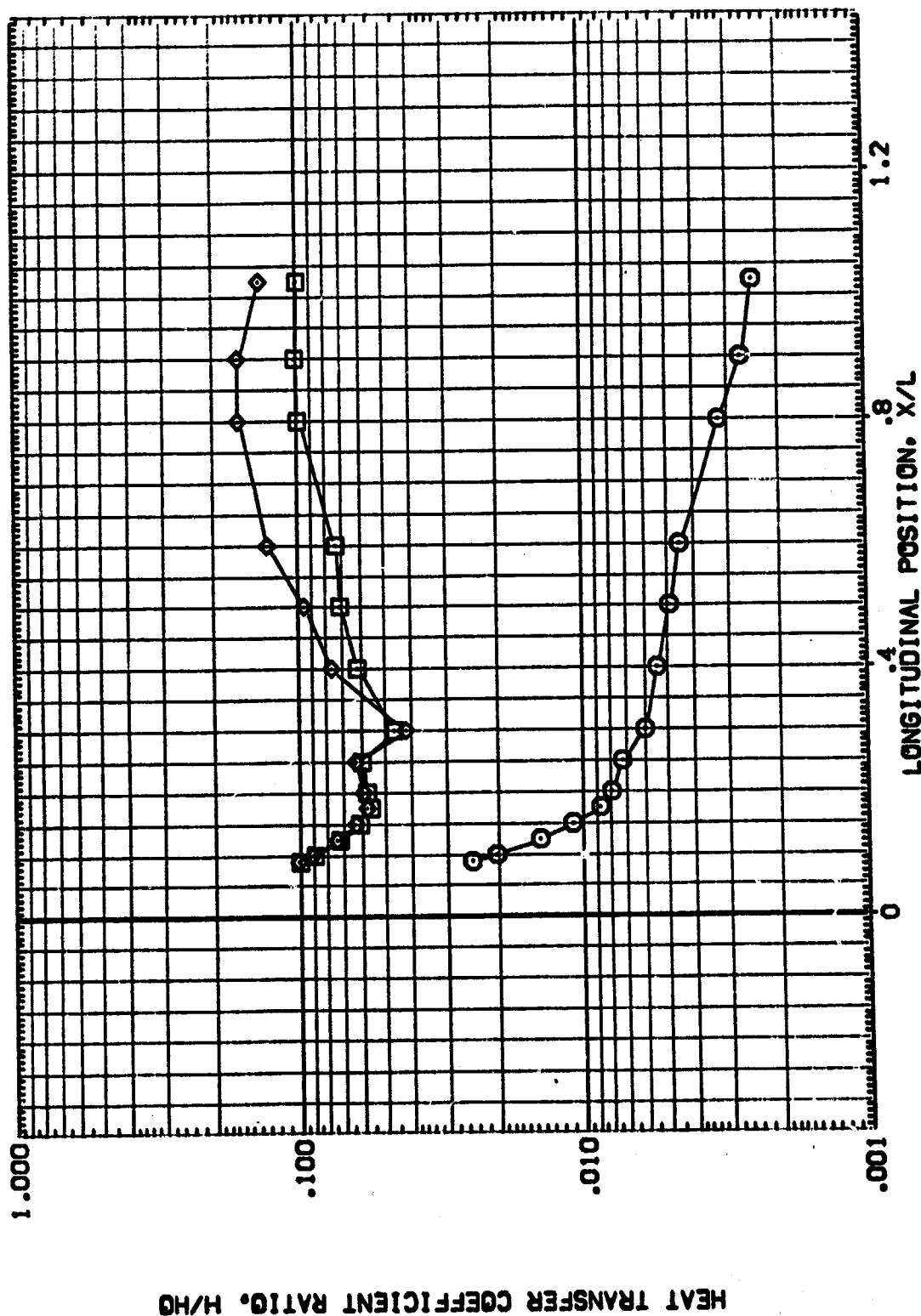


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 6.000 HAW/HT = .850 Y(BP) = 70.000

DATA S-T SYMBOL CONFIGURATION DESCRIPTION
 (B-0001) 0413 B10C346707F4GVS
 (B-0002) 0413 B10C346707F4GVS
 (B-0003) 0413 B10C346707F4GVS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

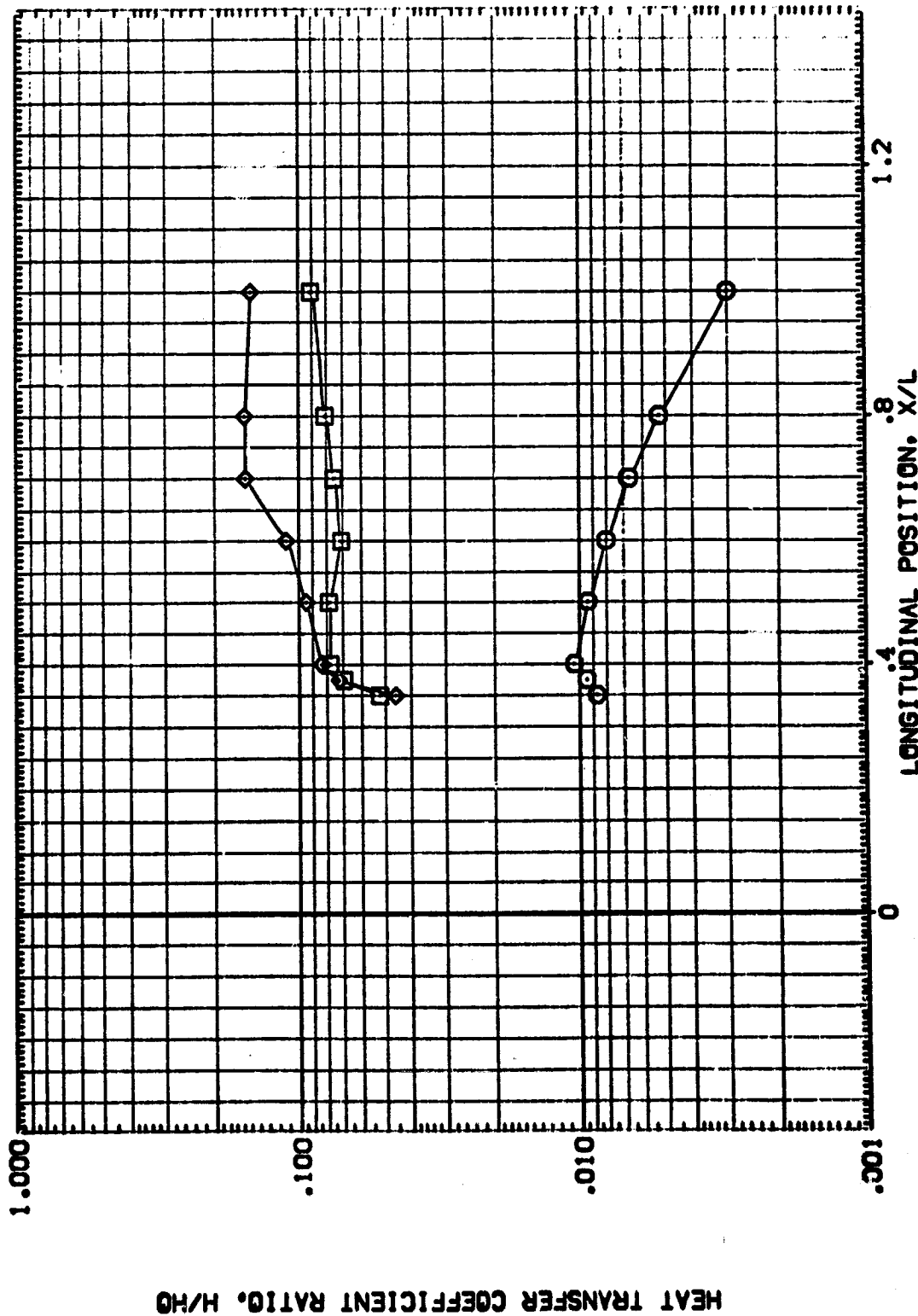


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RM/L = 6.000 HAW/HT = 1.000 Y(BP) = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (8-0001) 0413 8103-8707-4-0-5
 (8-0002) 0413 8103-8707-4-0-5
 (8-0003) 0413 8103-8707-4-0-5

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

RN/L = 6.000 HAW/HT = 1.000 Y(CBP) = 70.000

0H13 B10C5V8707F4M3V5

(BP0001)

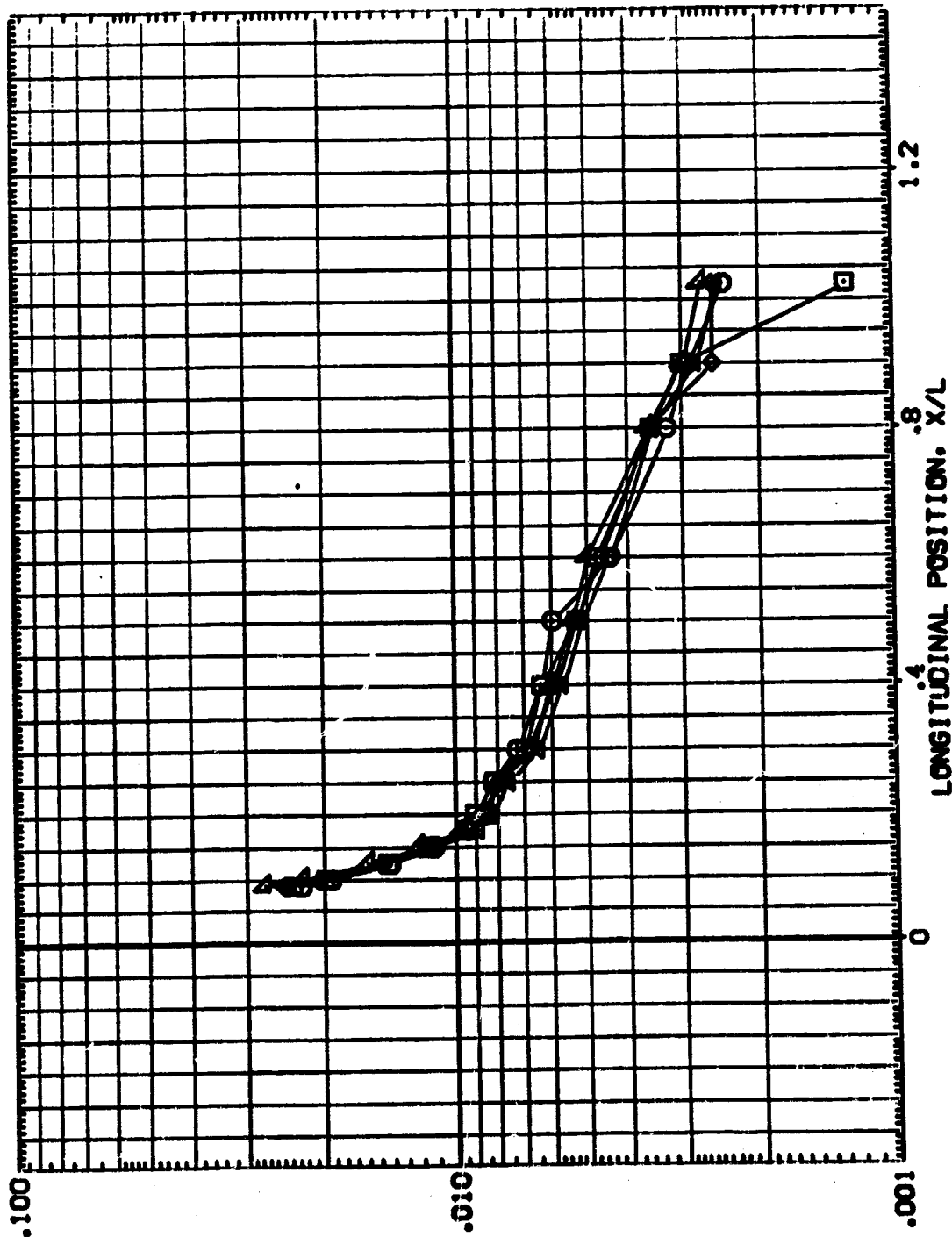
SYMBOL
□ ◇ ○ △

W/L
1.000
2.000
3.000
4.000
6.000
.100

V(BP) W/WAT
.000 .050

PARAMETRIC VALUES
W/ 8.000 ALPHA .000
BE .000 ELEVON .000
RL .000

HEAT TRANSFER COEFFICIENT RATIO, H/H0



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

0H13 B10C5V87D7F4M3V5

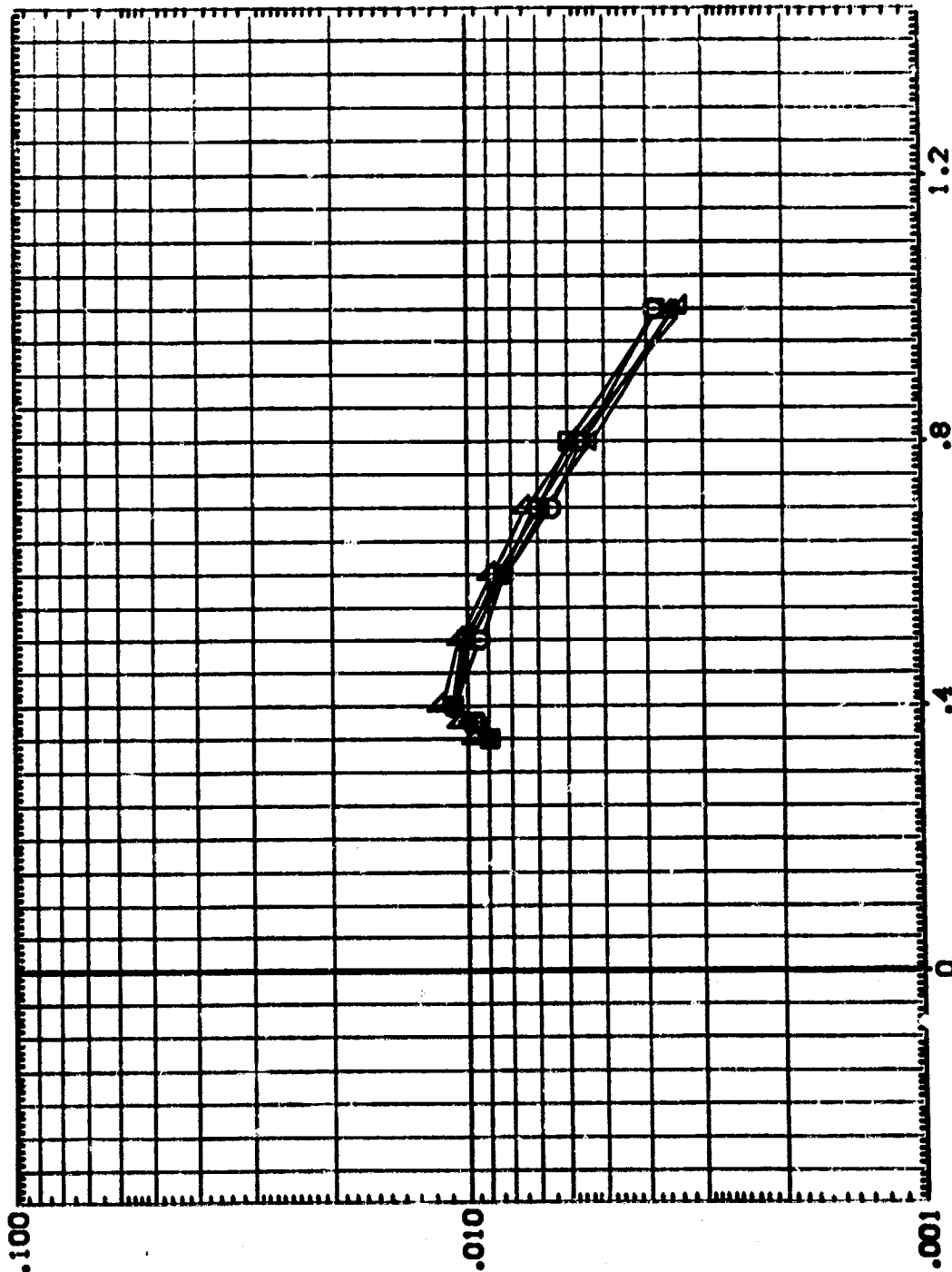
(BP0001)

74000

1.000
2.000
3.000
4.000
6.000

Y(EP) 70.000
HAW/MT .000

PARAMETRIC VALUES
MACH 8.000
BETA .000
RUDDER .000
ALPHA .000
ELEVON .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LONGITUDINAL POSITION, X/L

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

CH13 B10C5W87D7F4M3V5

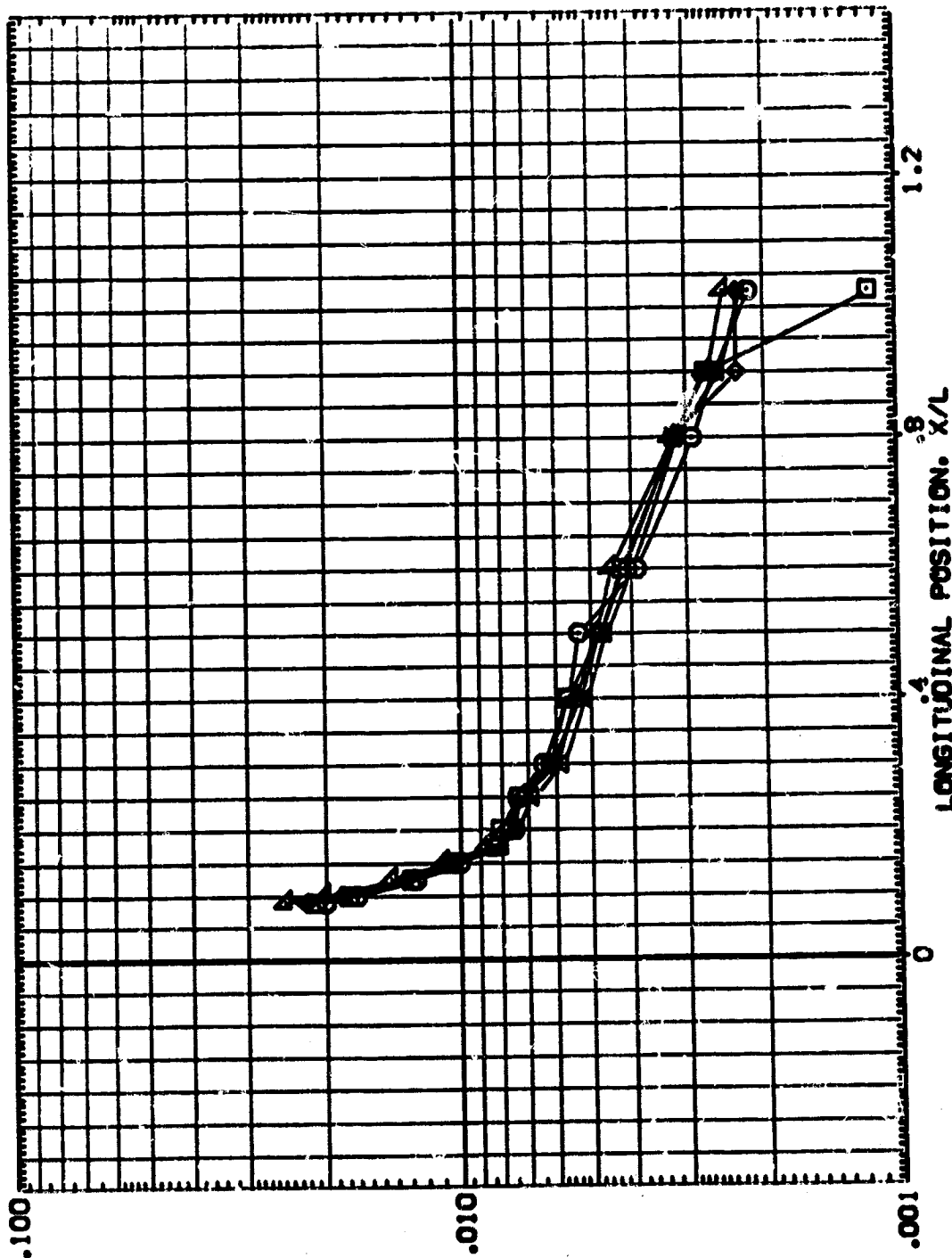
(BP00001)

SYMBOL 000044

RA/L 1.000
2.000
3.000
4.000
6.000

Y(EP) MW/MT 1.000

PARAMETRIC VALUES
MACH 9.000 ALPHA .000
BETA .000 ELEVON .000
P.000R



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

0H13 B10C5W87D7F4M3V5

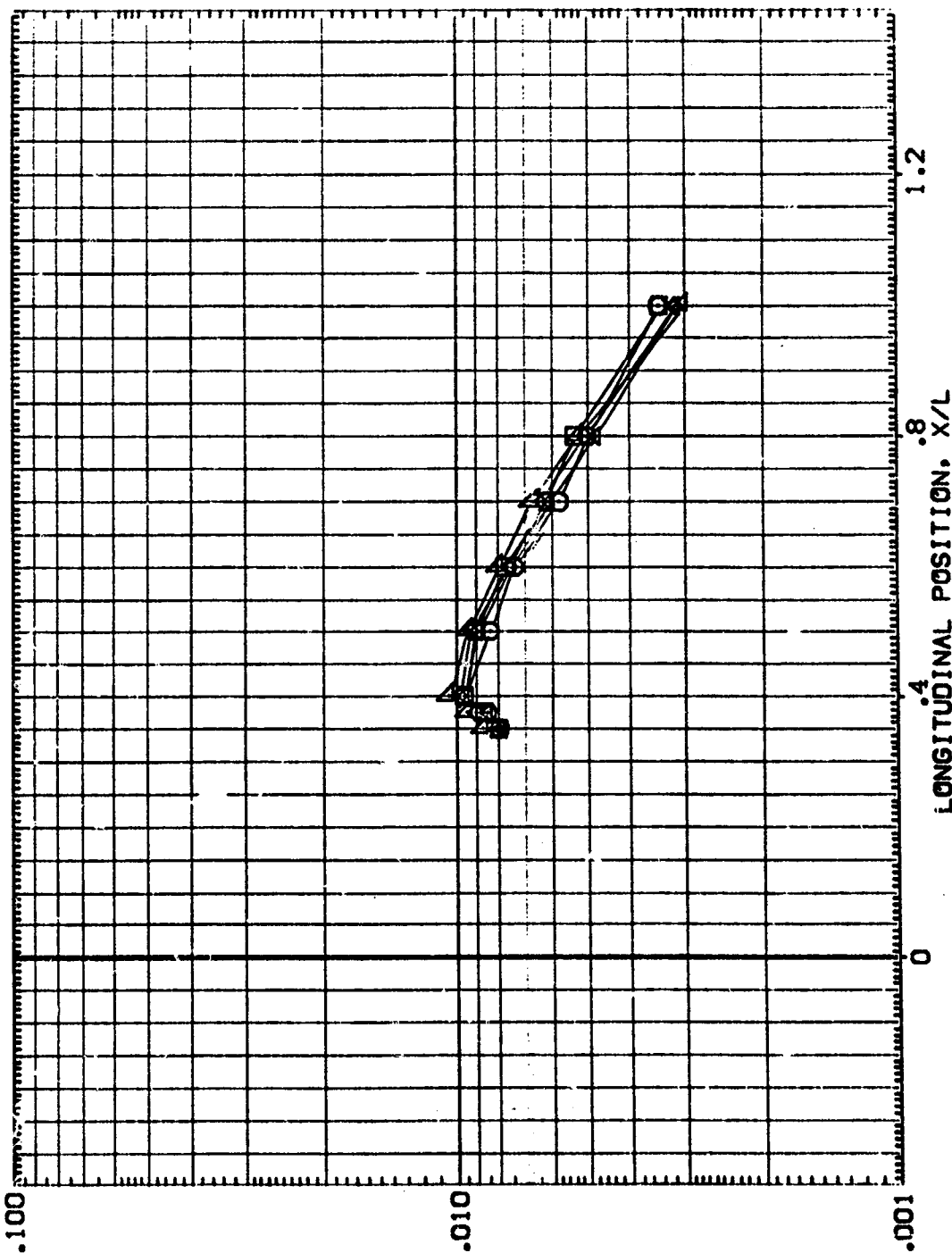
(BP0001)

SYMBOL
 ▽
 ◇
 □
 ○

PAVL 1.000
 2.000
 3.000
 4.000
 6.000

Y(8P) 70.000
 MAV/AT 1.000

PARAMETRIC VALUES
 MACH 8.000
 ALPHA .000
 BETA .000
 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



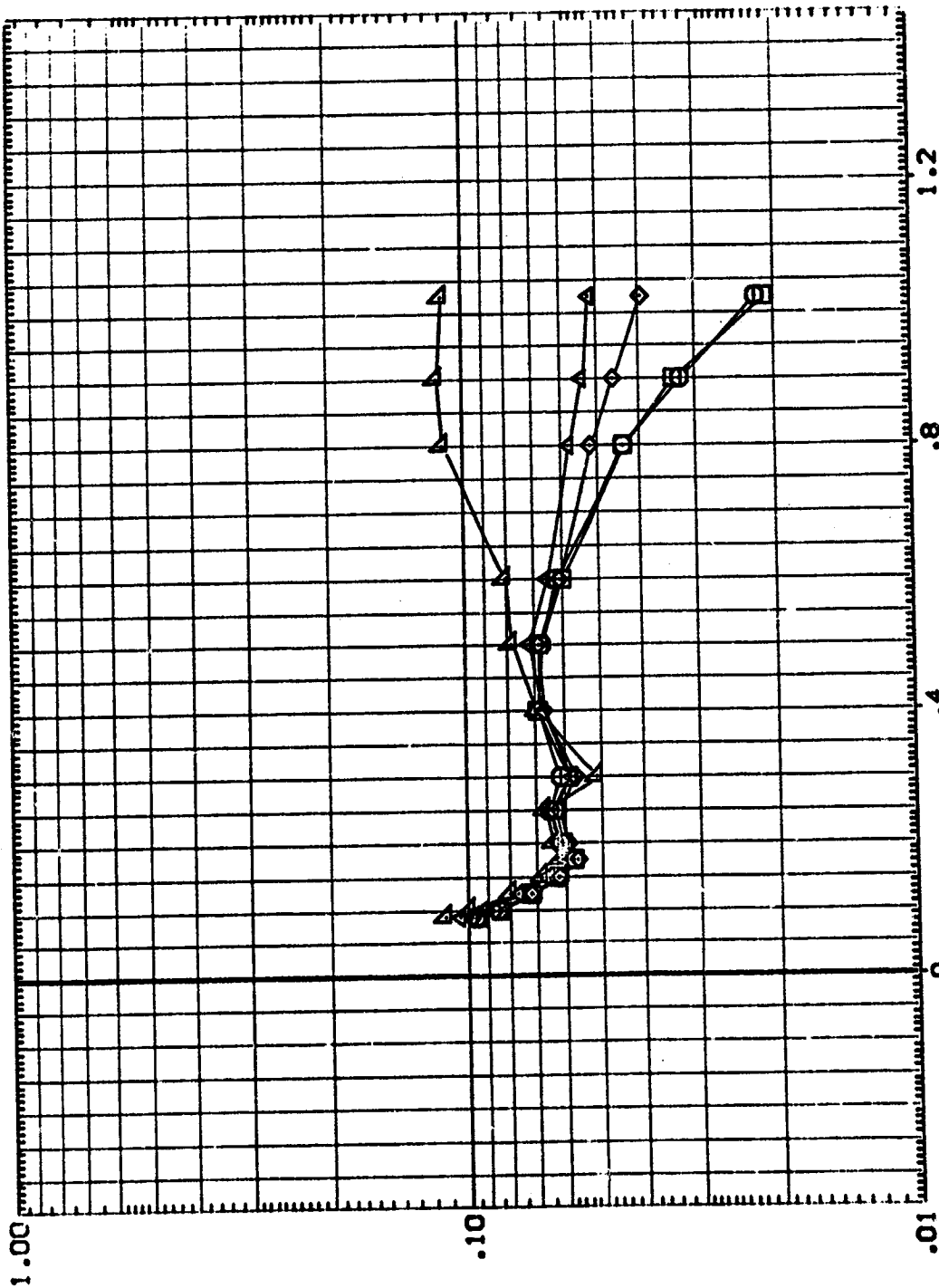
0H13 B10C5W87D7F4M3V5

(BP00002)

SYMBOL
 1.000
 2.000
 3.000
 4.000
 6.000

RV/L
 YIBP
 HAV/HT
 .000
 .850

PARAMETRIC VALUES
 MACH 8.000 ALPHA 30.000
 BETA .000 ELEVON .000
 RUDDER .000



LONGITUDINAL POSITION, X/L

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

0H13 B10C5W87D7F4M3V5

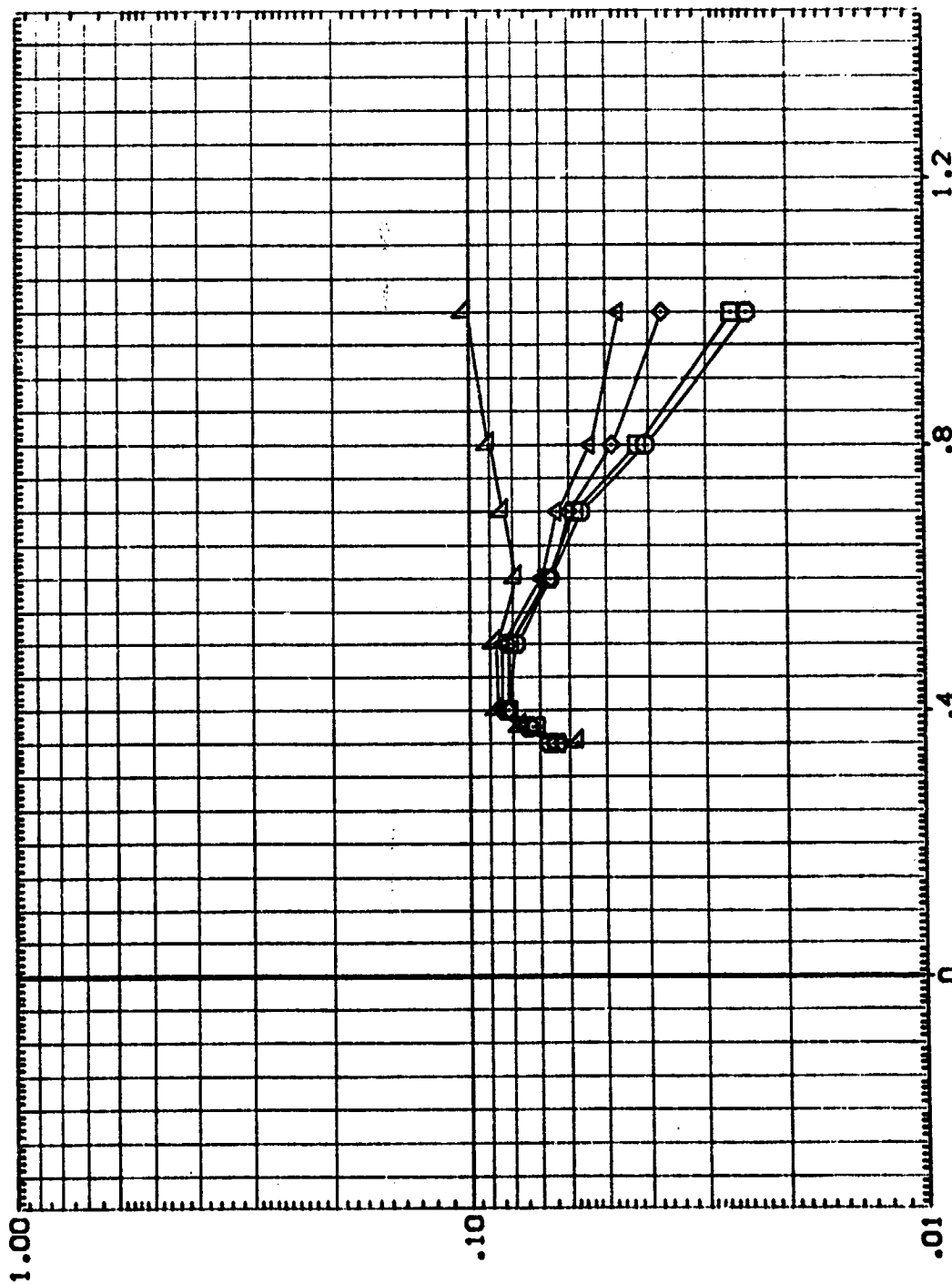
(BP0002)

SYMBOL
 ∇ \square \diamond \triangle

RV/L
 1.000
 2.000
 3.000
 4.000
 6.000

Y(BP)
 70.000
 .650

PARAMETRIC VALUES
 MACH 30.000
 BETA .000
 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LONGITUDINAL POSITION, X/L

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY



QH13 B10C5W87D7F4M3V5

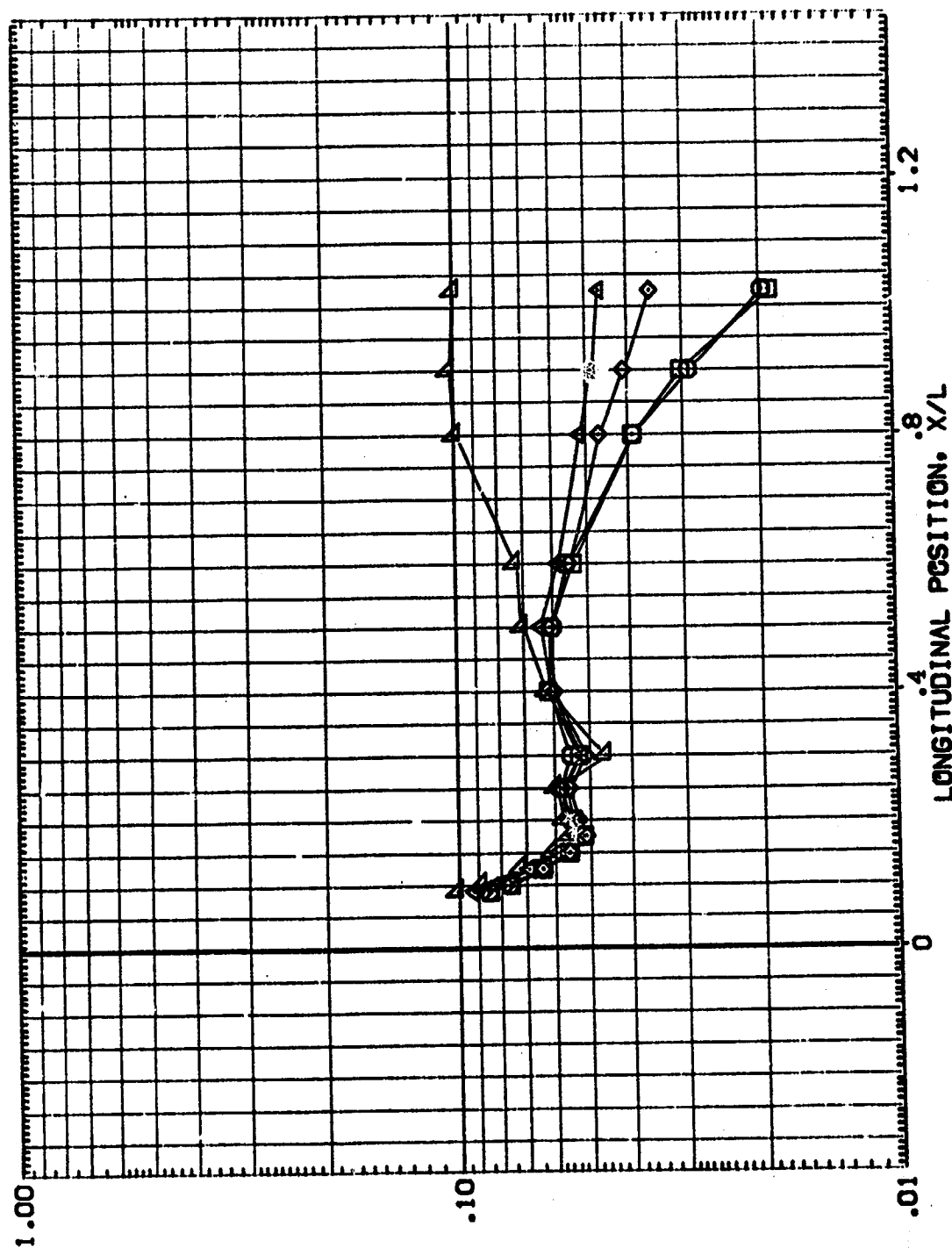
(BP0002)

SYMBOL
 ∇ \diamond \square \triangle

RA/L
 1.000
 2.000
 3.000
 4.000
 6.000

Y(BP) HAV/HT
 .000 1.000

PARAMETRIC VALUES
 MACH 8.000 ALPHA 30.000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H_0

LONGITUDINAL POSITION, X/L
 HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

OH13 B10C5W87D7F4M3V5

(BP0002)

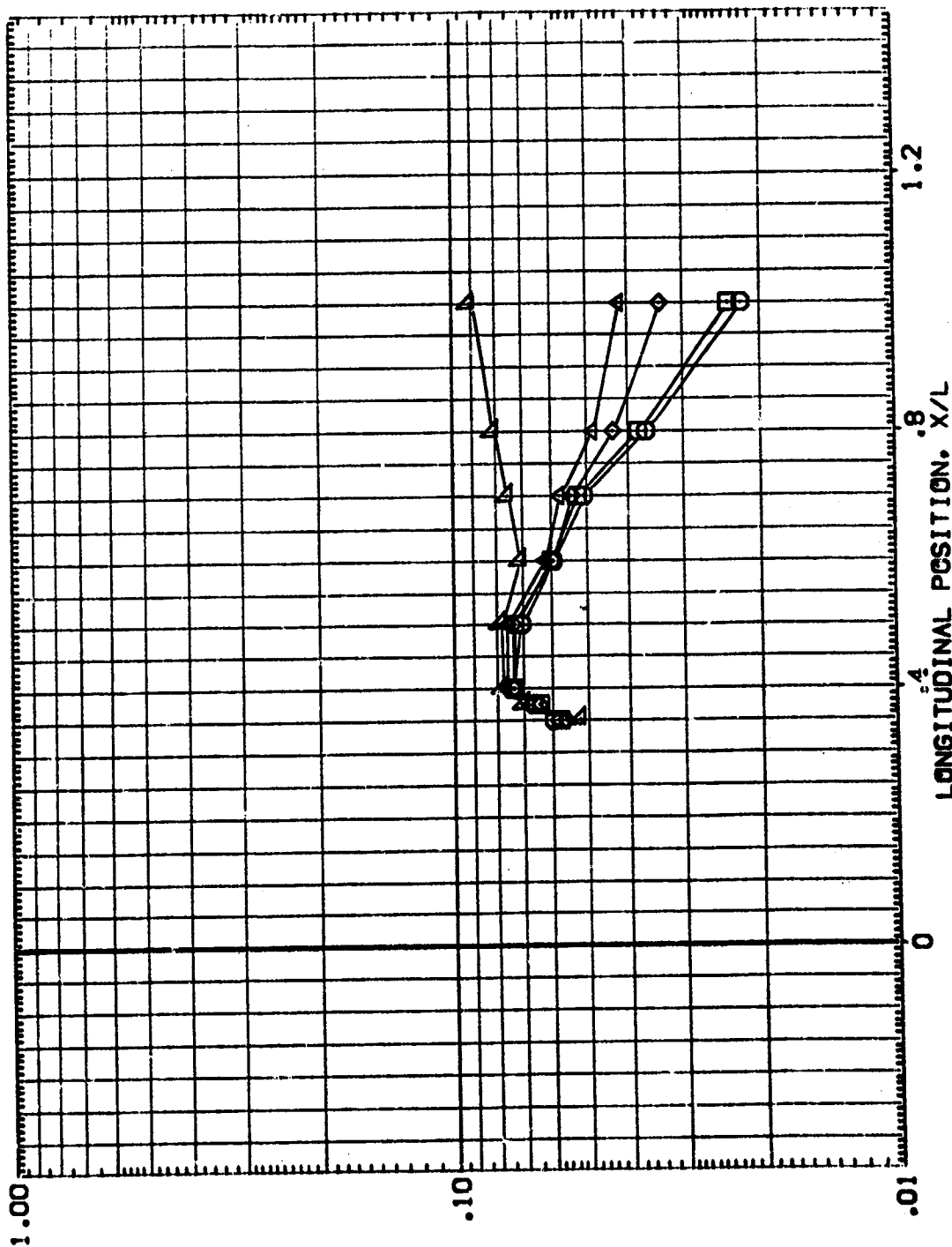
SYMBOL
 ∇ \square \diamond \triangle

RV/L
 1.000
 2.000
 3.000
 4.000
 6.000

Y(BP)
 70.000

HAV/MT
 1.000

PARAMETRIC VALUES
 MACH 8.000 ALPHA 30.000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/HG

LONGITUDINAL POSITION, X/L

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

CH13 B10C5W87D7F4M3V5

(BP00003)

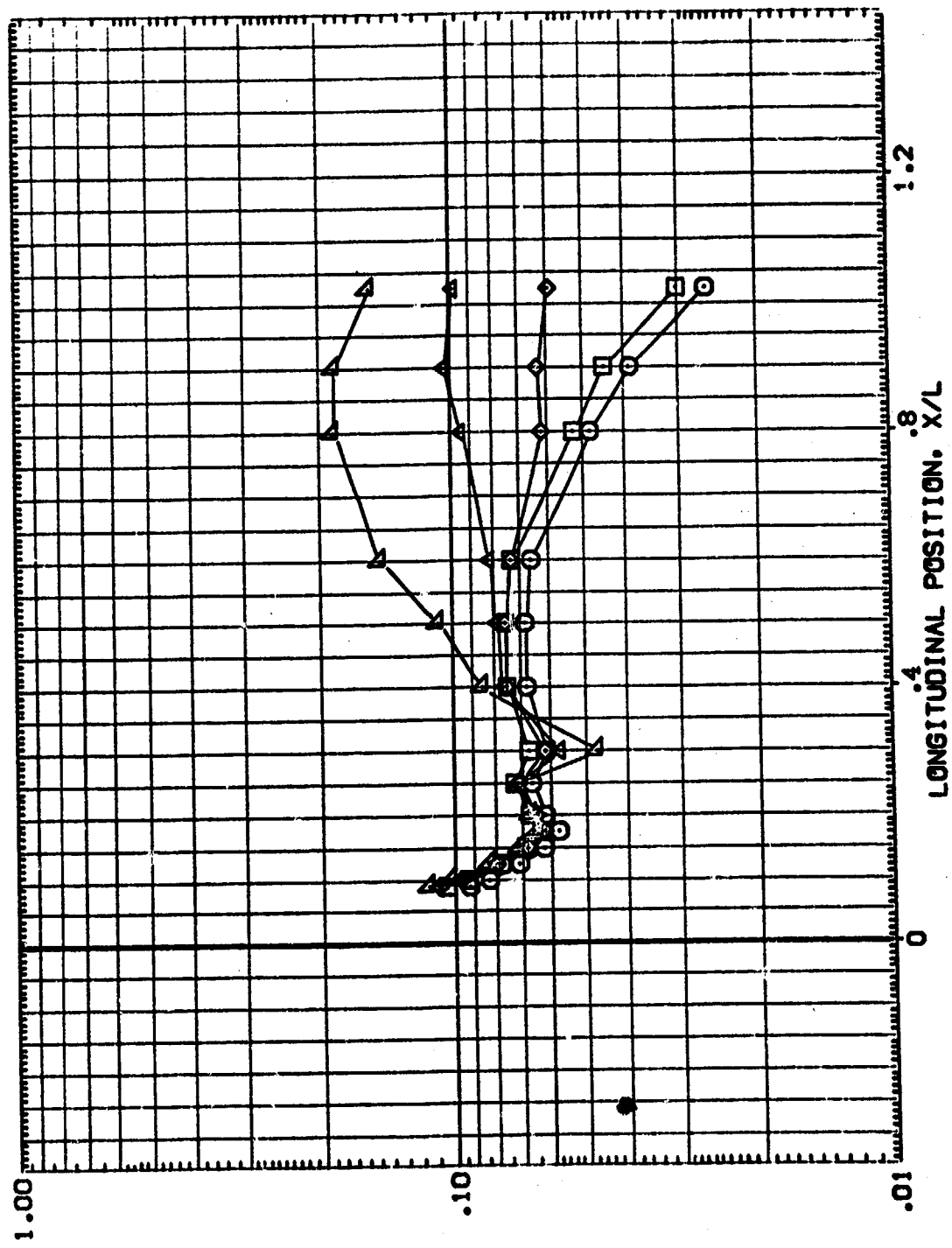
SYMBOL
 ▽
 ◇
 □
 ○

RV/L
 1.000
 2.000
 3.000
 4.000
 6.000

Y(BP)
 .000

HAY/AT
 .850

PARAMETRIC VALUES
 MACH 8.000 ALPHA 35.000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

0H13 B10C5W87D7F4M3V5

(BP0003)

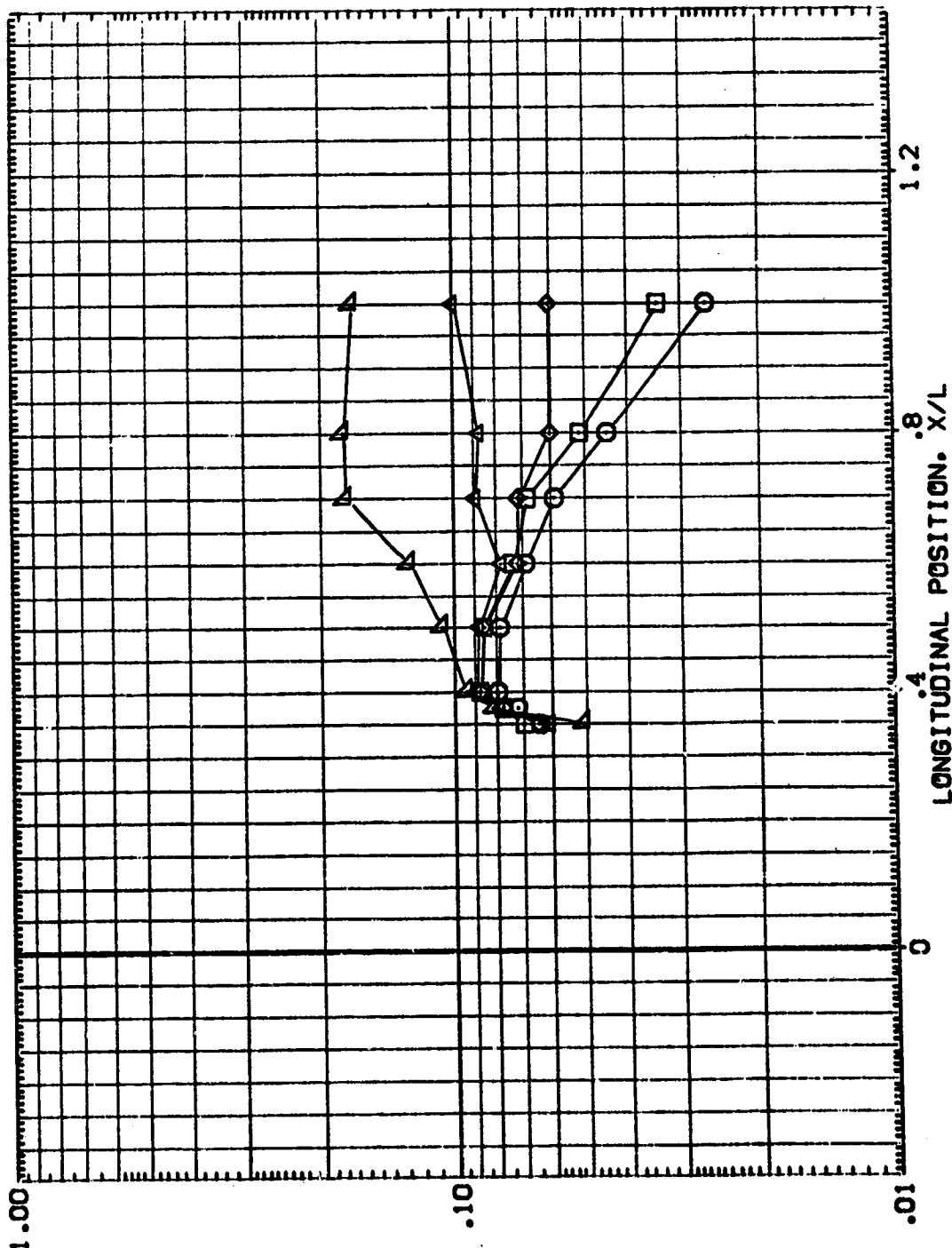
SYMBOL
▽ ◊ □ ○

RV/L
1.000
2.000
3.000
4.000
6.000

Y(BP)
70.000

MAV/HIT
.850

PARAMETRIC VALUES
MACH 8.000
BETA .000
RUDDER .000
ALPHA 35.000
ELEVON .000



HEAT TRANSFER COEFFICIENT RATIO, H/H_0

LONGITUDINAL POSITION, X/L

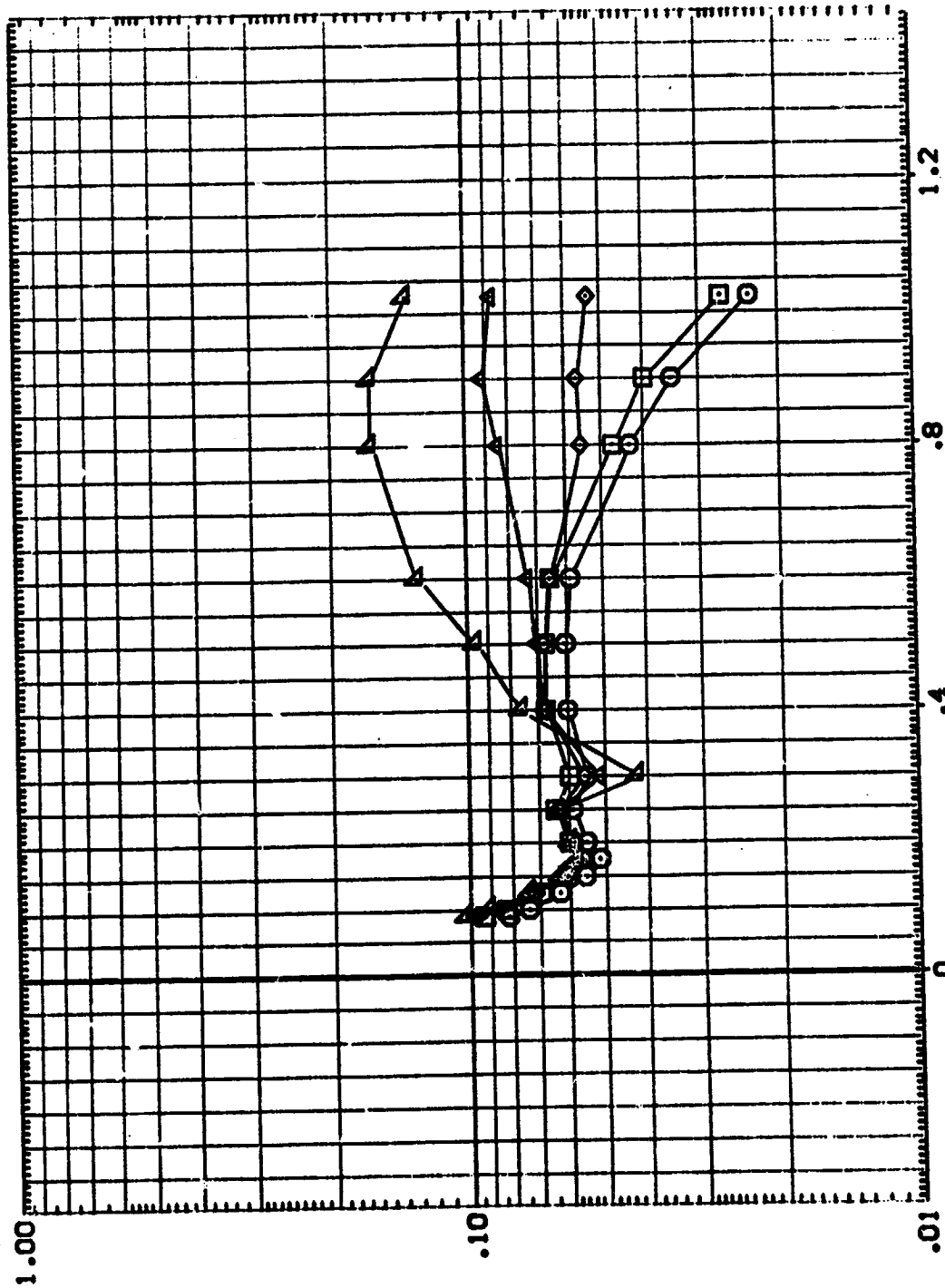
QH13 B10C5W87D7F4M3V5

(BP00003)

PARAMETRIC VALUES
 MACH 8.000 ALPHA 35.000
 BETA .000 ELEVON .000
 RUDDER .000

SYMBOL
 1.000
 2.000
 3.000
 4.000
 5.000

Y(BP) .000
 MAV/MT 1.000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LONGITUDINAL POSITION, X/L
 HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

0H13 B10C5W87D7F4M3V5

(BP0003)

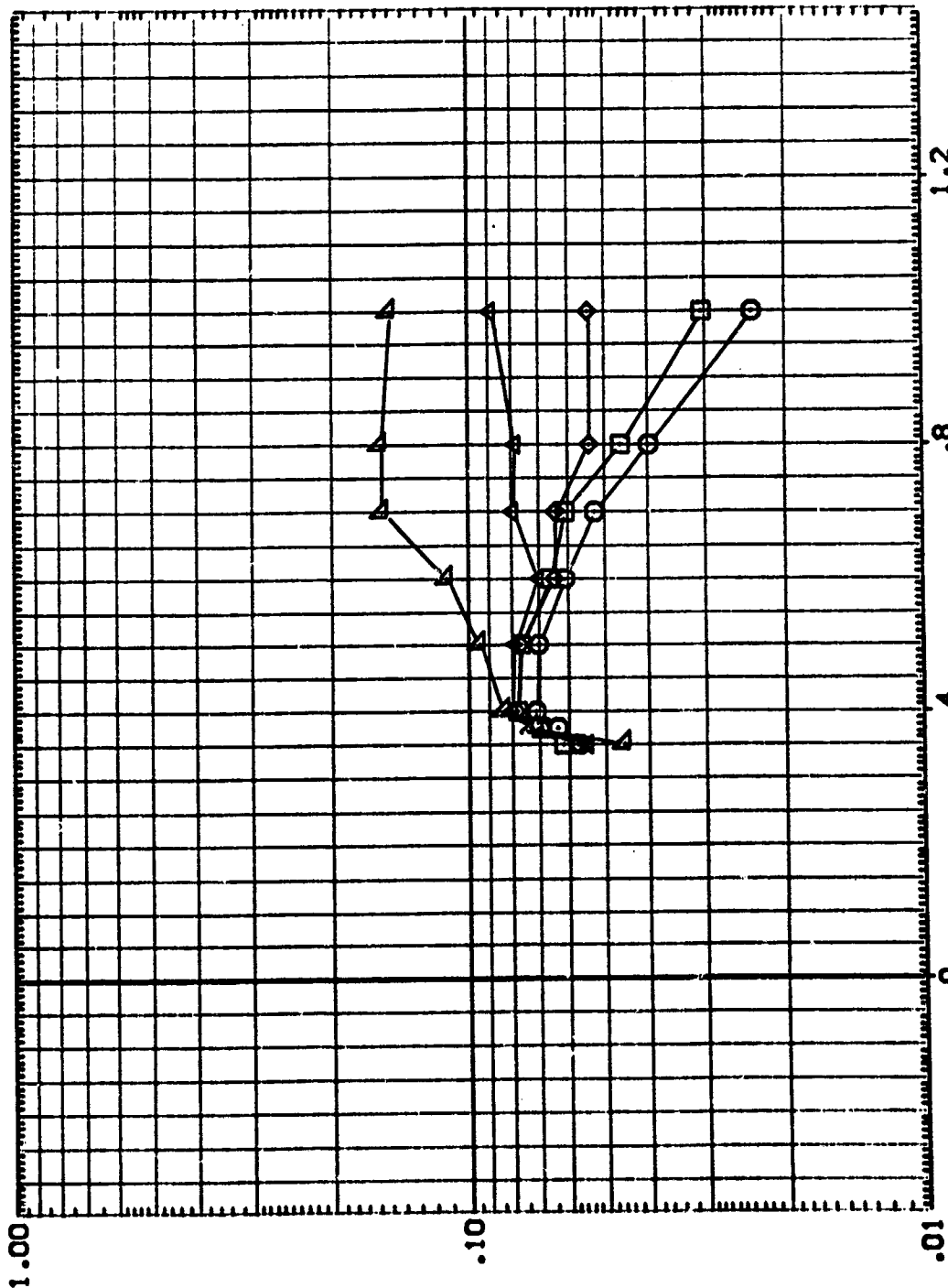
SYMBOL
 ∇ \diamond \square \circ

RA/L
 1.000
 2.000
 3.000
 4.000
 6.000

Y(SP)
 70.000

HAV/HT
 1.000

PARAMETRIC VALUES
 MACH 8.000 ALPHA 35.000
 BETA .000 ELEVON .000
 RUDDER .000



LONGITUDINAL POSITION, X/L

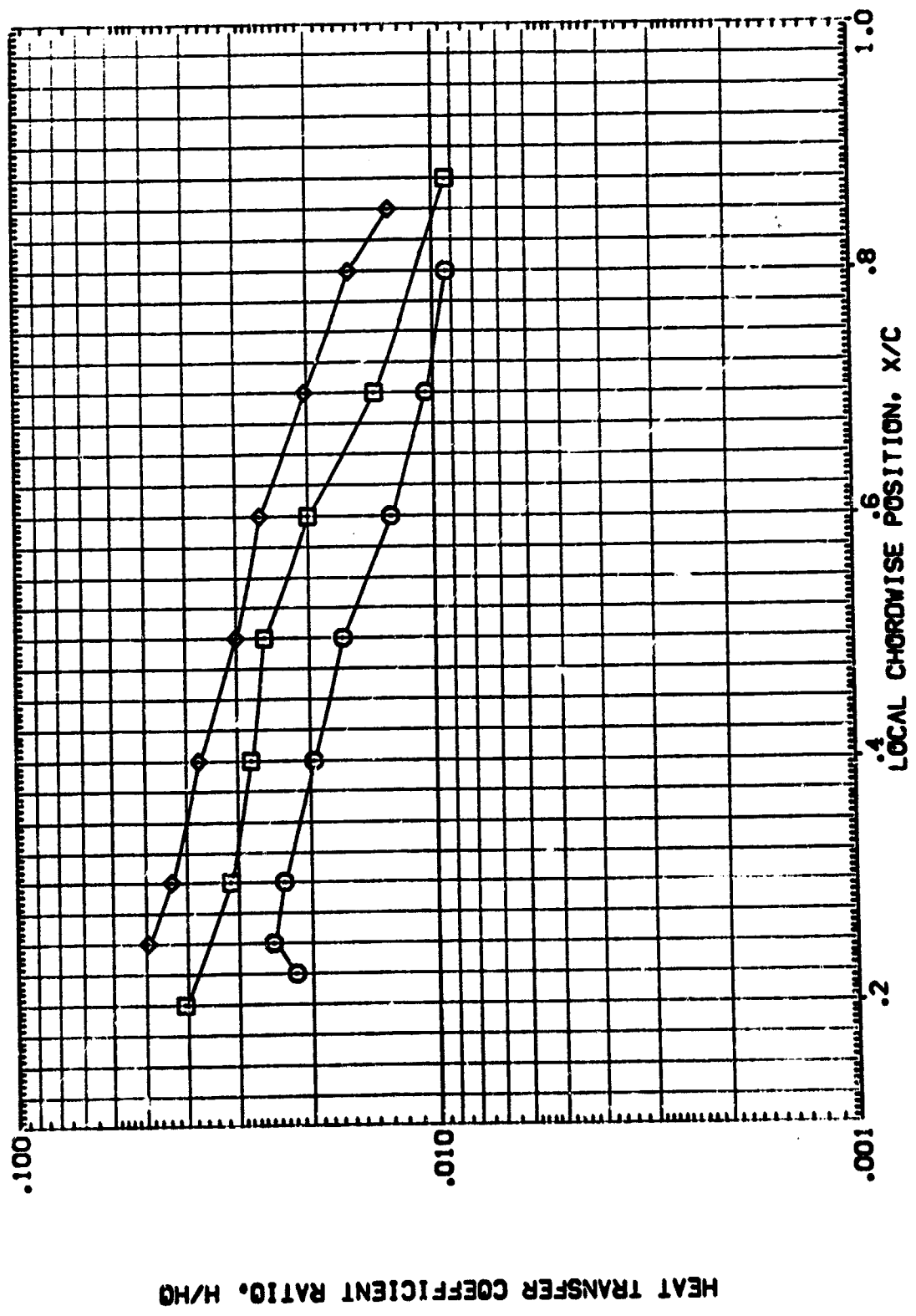
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER BODY

OH13 B10C5W8707F4M3V5

(WP0001)

SYMBOL 21/8 MACH REYNOLDS PARAMETRIC VALUES

◇	.400	.850	1.000	MACH	8.000	ALPHA	.000
□	.600			BETA	.000	ELEVON	.000
◇	.800			RUDDER	.000		



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

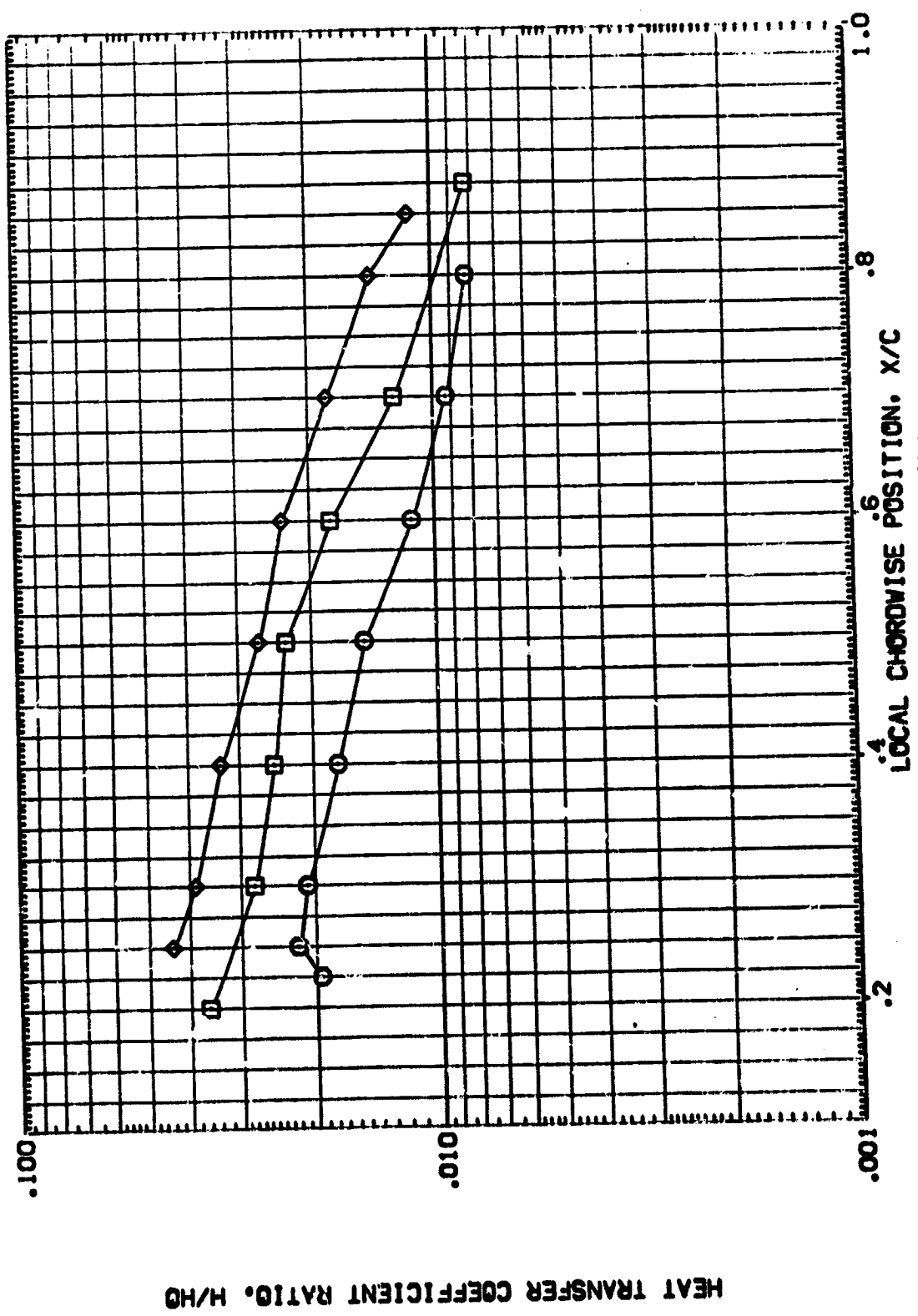
OH13 910C5W87D7F4M3V5

(WP0001)

SYMBOL
 □
 ○
 ◇

27/8
 .400
 .600
 .800
 1.000
 1.000
 1.000
 1.000

PARAMETRIC VALUES
 MACH 9.000 ALPHA .000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING



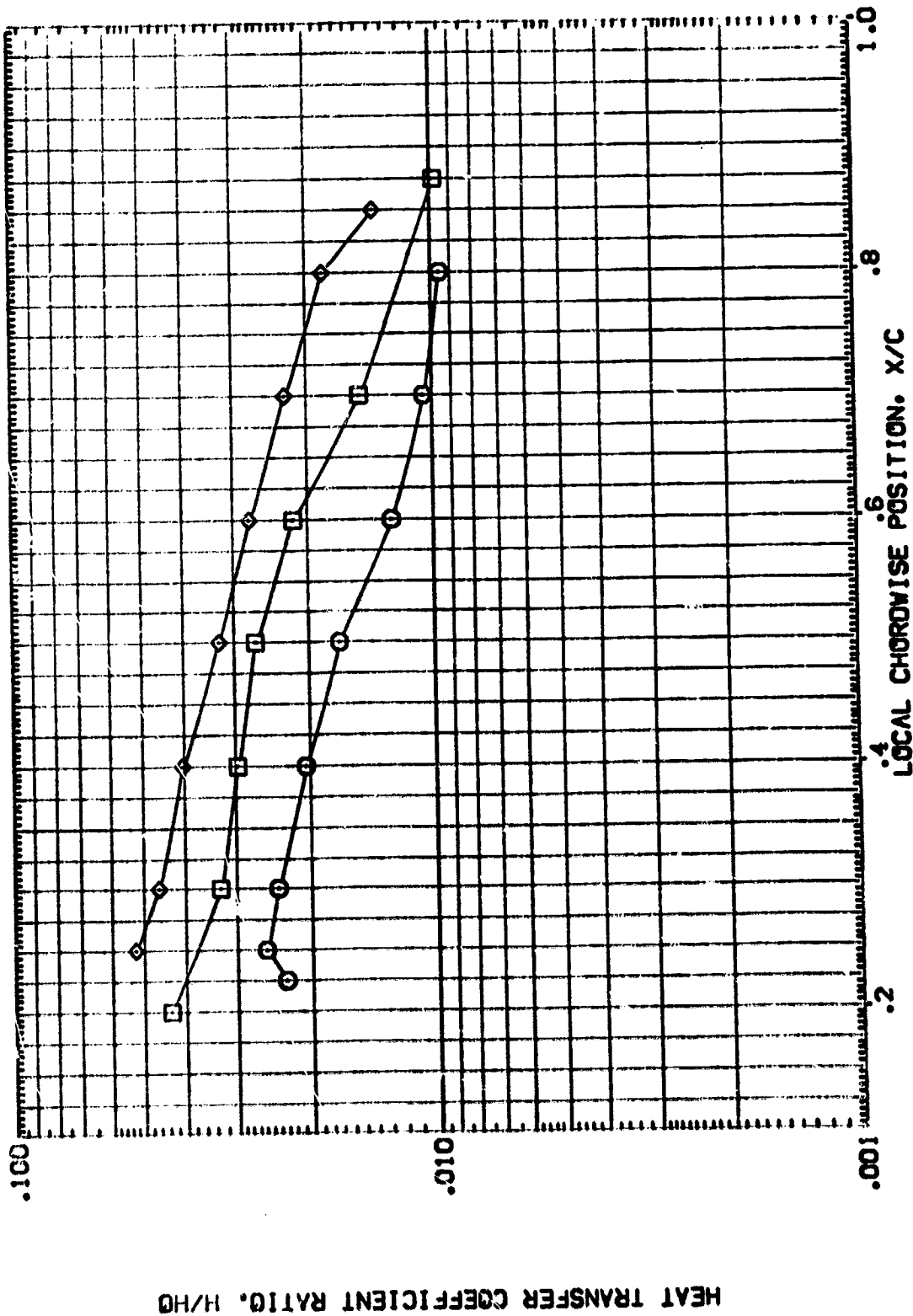
04-13 810CSW87D7F4M3V5

(WP0001)

PARAMETRIC VALUES
 MACH 9.000 ALPHA .000
 BETA .000 ELEVON .000
 RUDDER .000

SYMBOL
 21/3 .400
 .600
 .800

HAV/P .650
 RV/L 2.000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

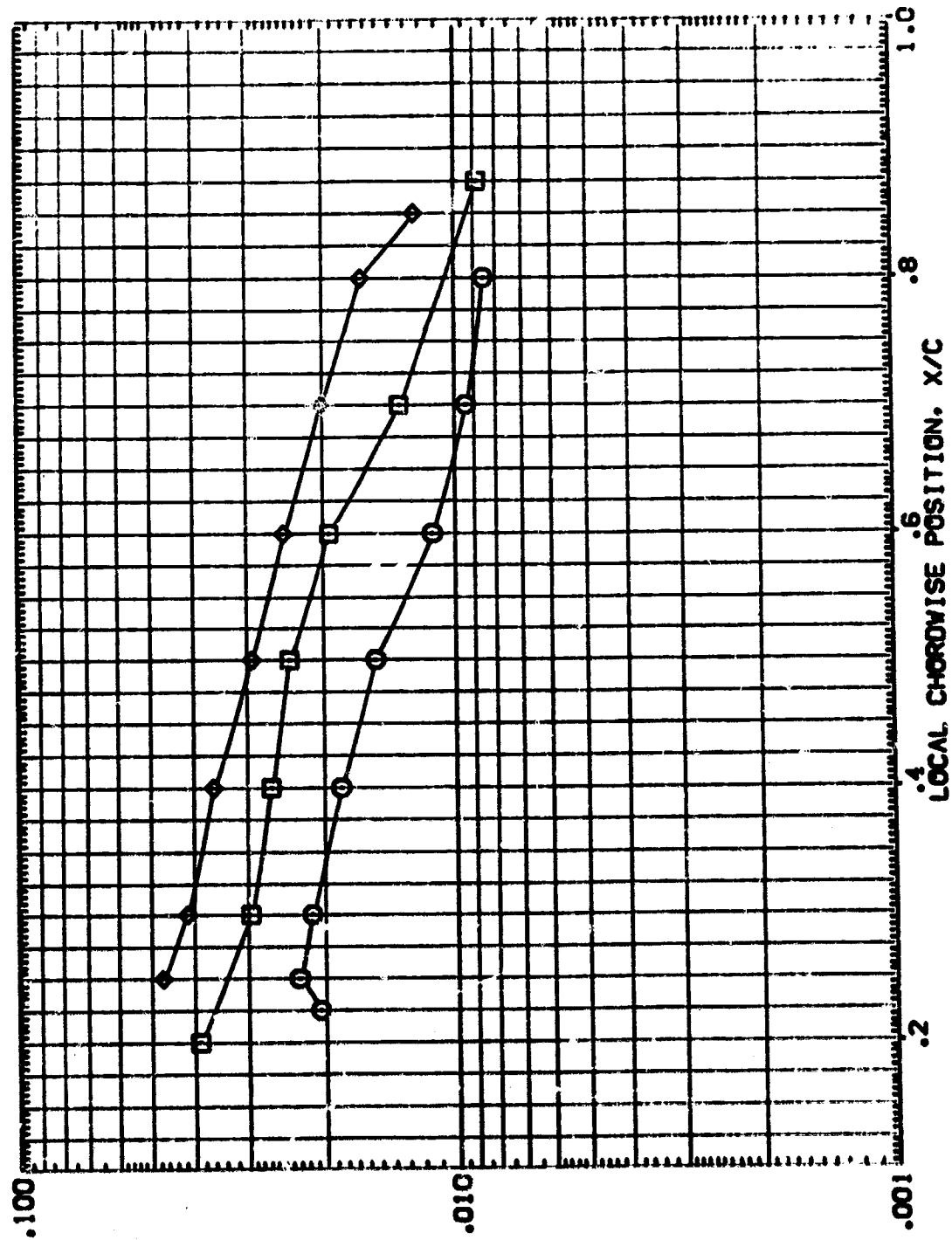
0H13 810C5W8707F4M3V5

(WP0001)

SYMBOL
 ◇
 □
 ○

27/8
 .400
 .800
 1.000
 2.000
 3.000

PARAMETRIC VALUES
 MACH 8.000 ALPHA .000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

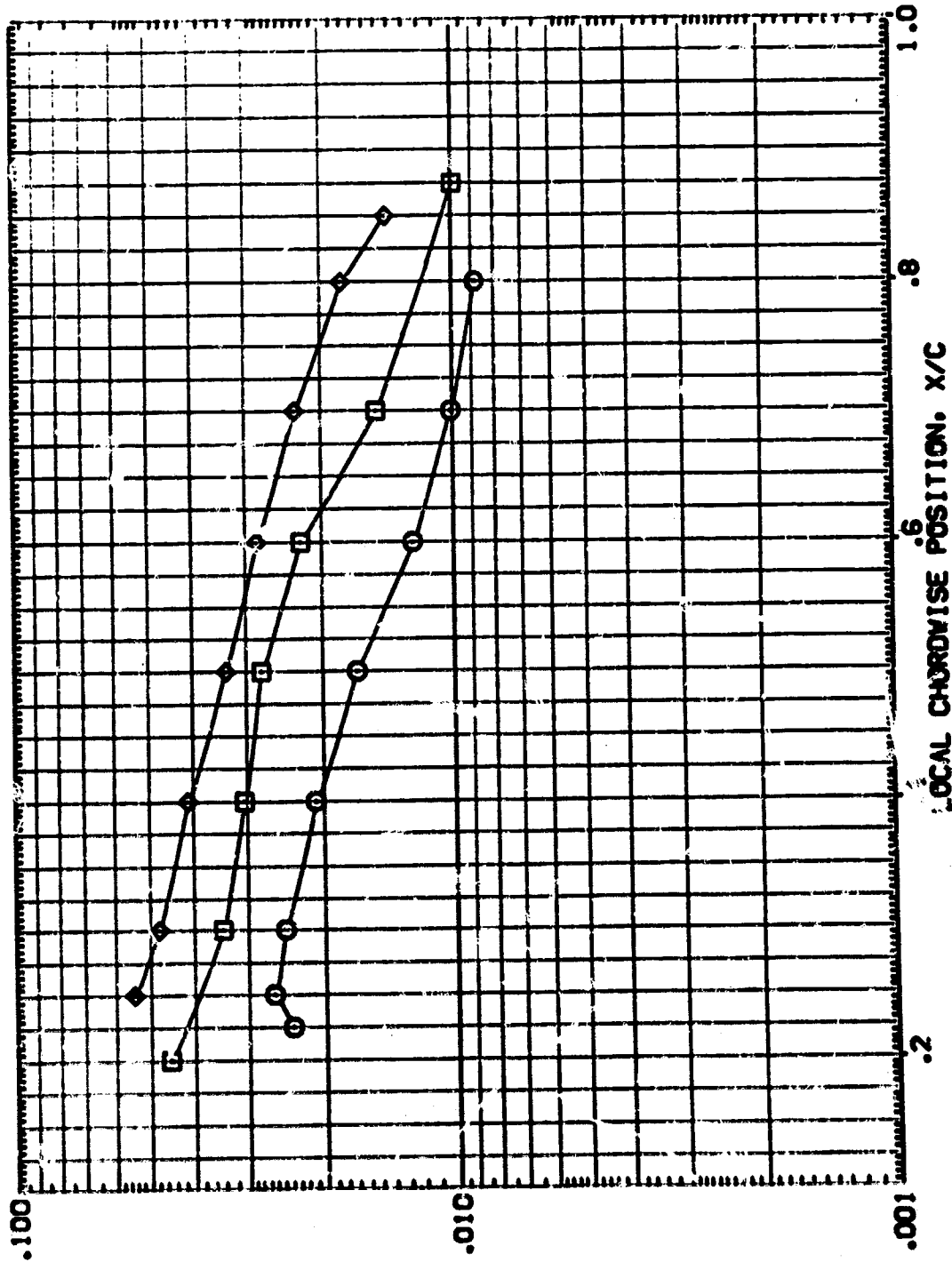
0413 B10C5W87D7F4M3V5

(WP0001)

SYMBOL
 ◇
 □
 ○

27/8 .400 .850 3.000
 MACH
 .400 .850 3.000
 RUL

PARAMETRIC VALUES
 MACH 8.000 ALPHA .000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H₀

LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

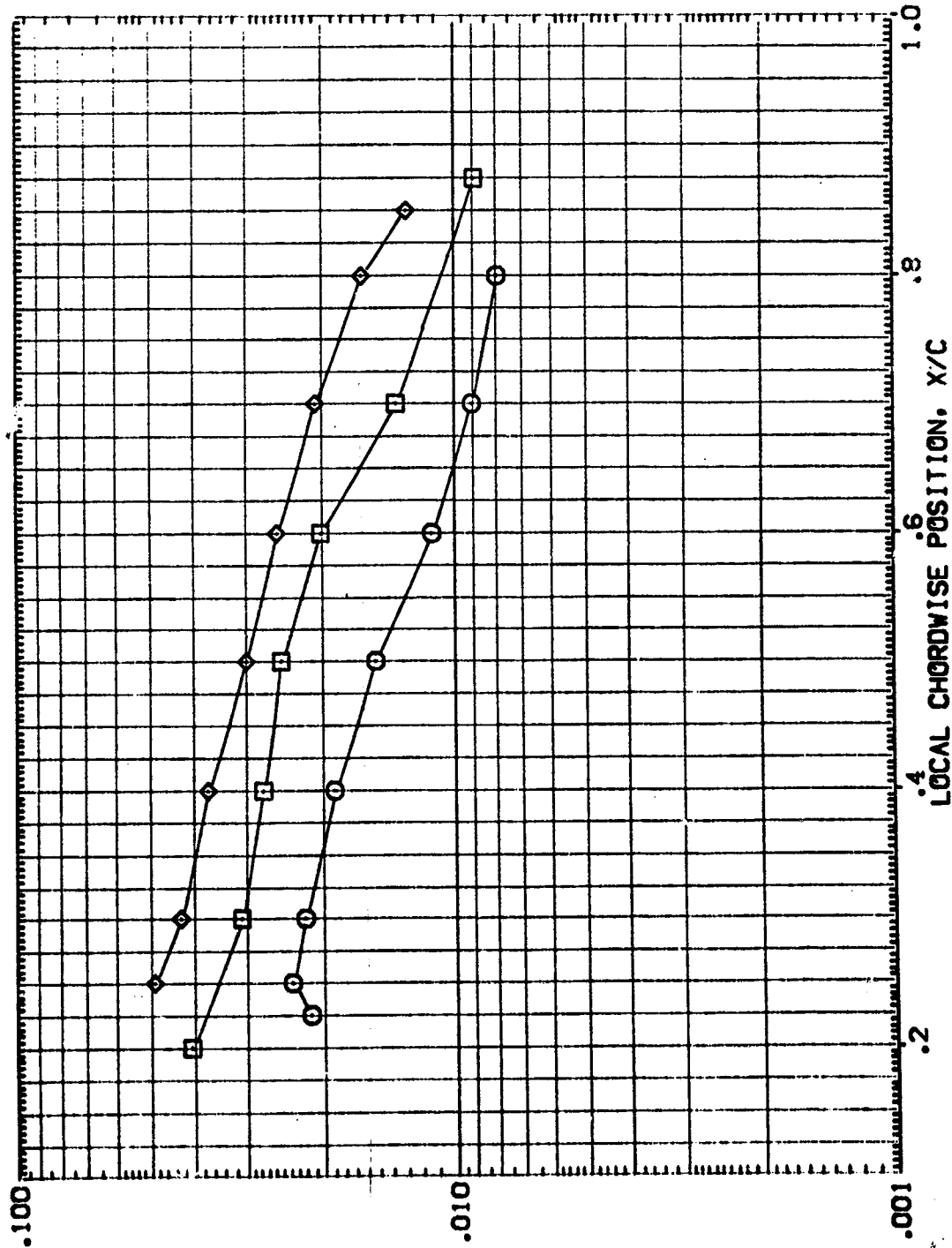
OH13 B10C5W87D7F4M3V5

(WP00001)

SYMBOL
 21/8
 .400
 .600
 .800

MAV/AT
 1.000
 3.000

PARAMETRIC VALUES
 MACH
 BETA
 RUDDER
 .000
 .000
 .000
 .000
 .000
 .000

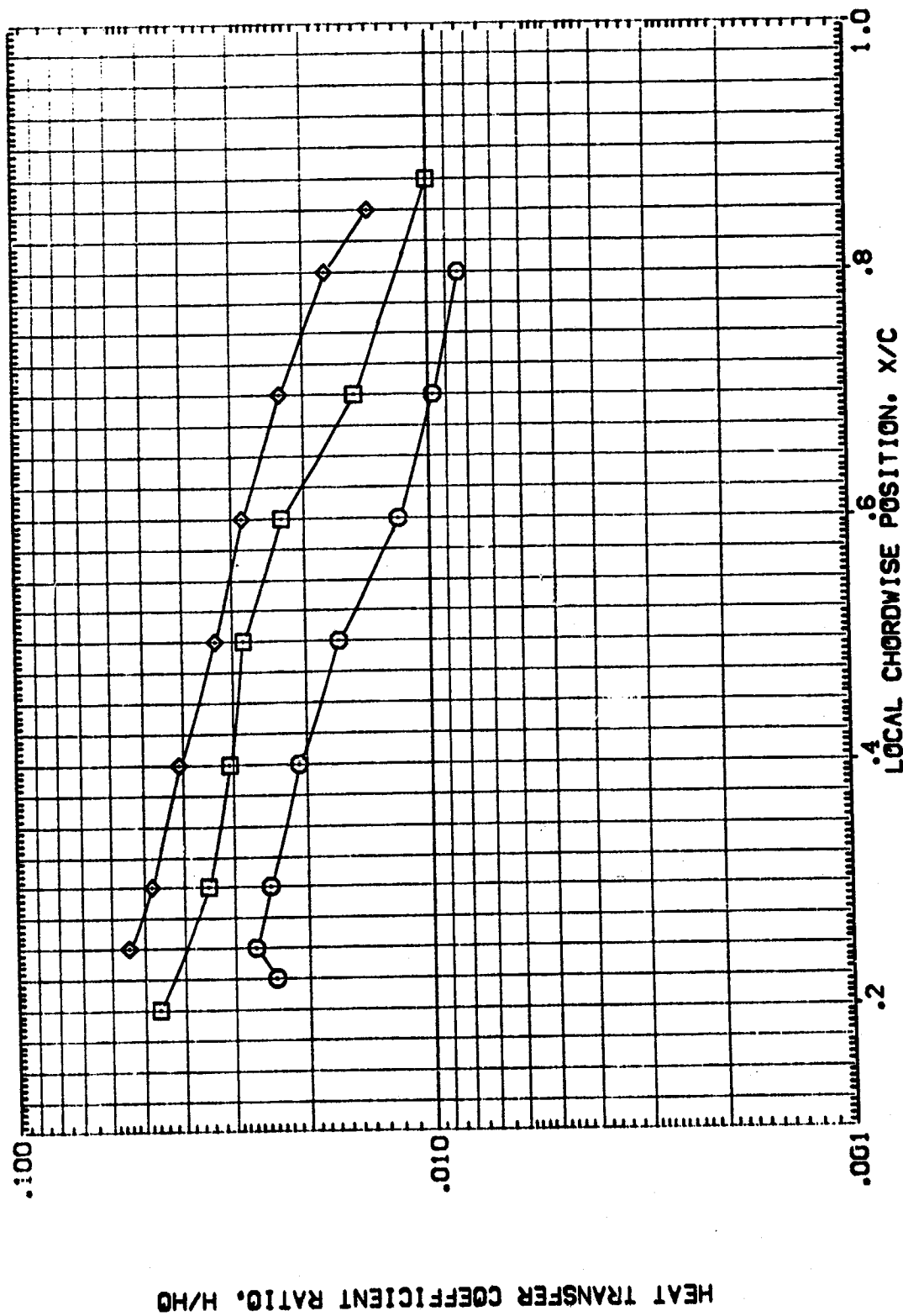


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

CH13 B10C5W87D7F4M3V5

(WP0001)

SYMBOL	21/8	MAV/HT	RV/L	PARAMETRIC VALUES		
◇	.400	.850	4.000	MACH	8.000	ALPHA
□	.600			BETA	.000	ELEVON
○	.800			RUDDER	.000	



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

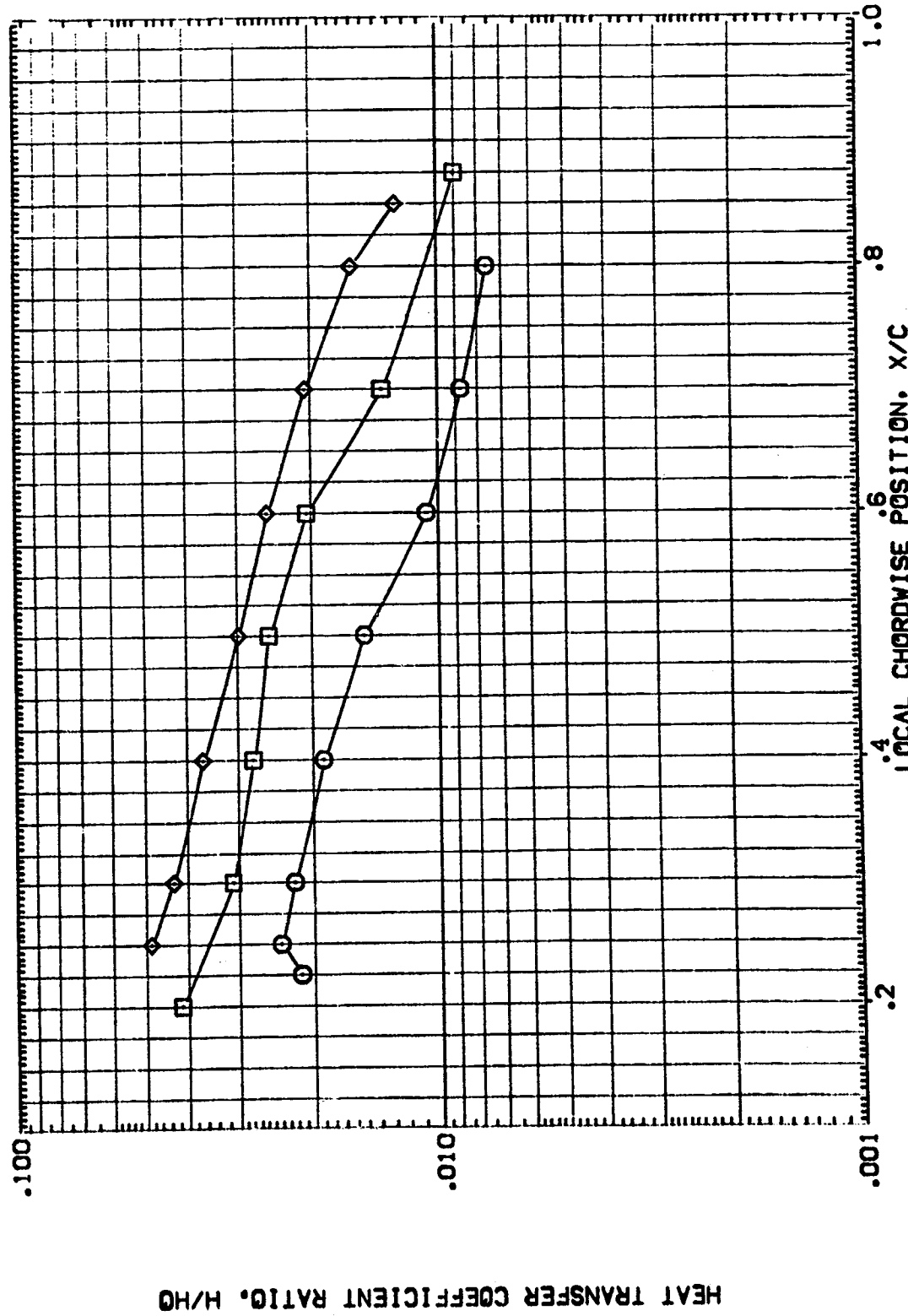
OH13 B10C5W87D7F4M3V5

(WP0001)

SYMBOL
 ◇
 □
 ○

2V/B .400
 MACH 1.000
 RV/L 4.000

PARAMETRIC VALUES
 MACH .000
 BETA .000
 RUDDER .000
 ALPHA .000
 ELEVON .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

0113 B10C5W87D7F4M3V5

(WP00001)

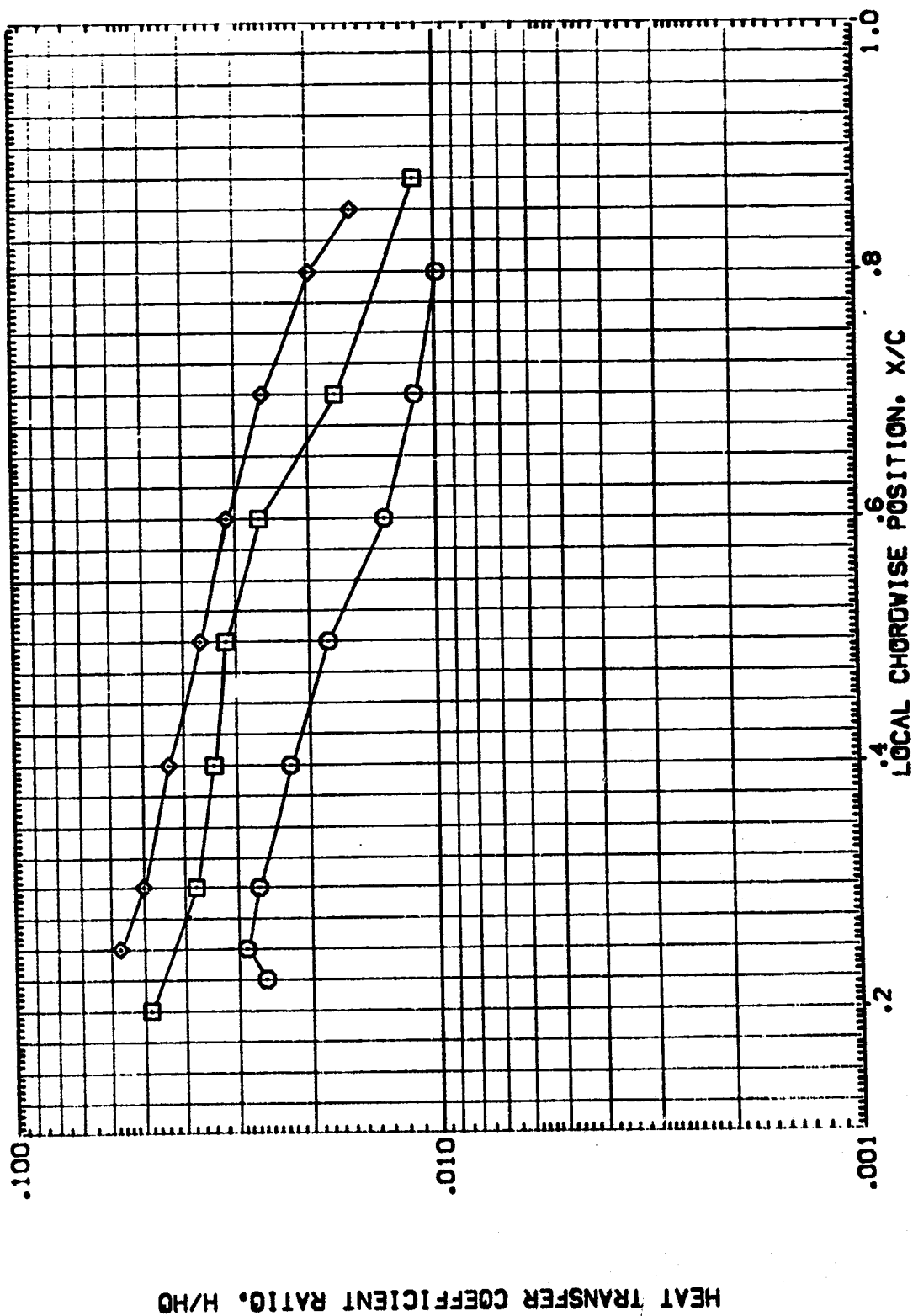
SYMBOL
 ◇
 □

21/8
 .400
 .600
 .800

HAV/HT
 .850

RV/L
 5.000

PARAMETRIC VALUES
 MACH 9.000 ALPHA .000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

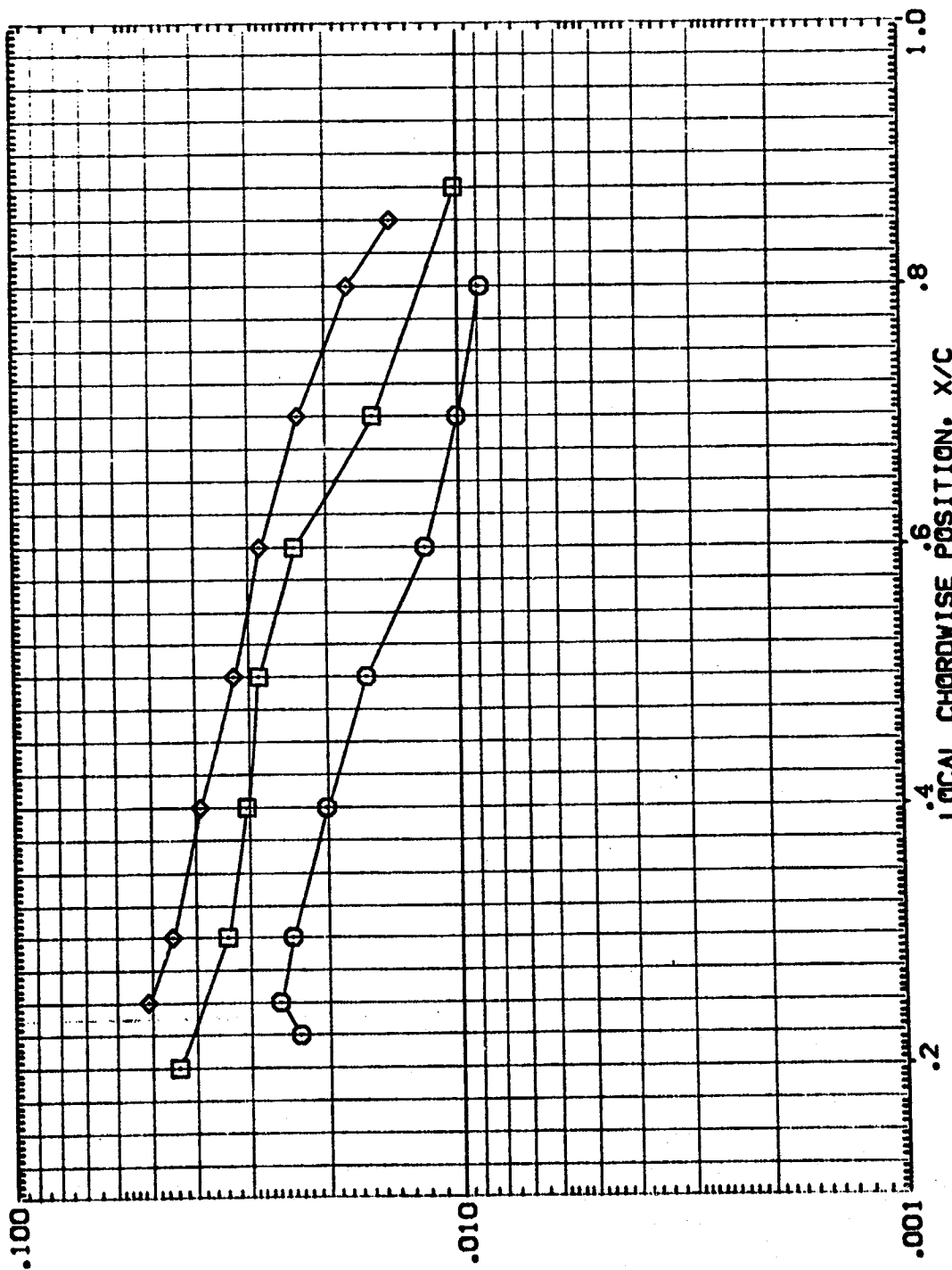
0H13 B10C5W87D7F4M3V5

(WP00001)

SYMBOL
 ◇
 □
 ○

2V/B .400
 HAV/AT 1.000
 RV/L 8.000

PARAMETRIC VALUES
 MACH 8.000
 BETA .000
 RUDDER .000
 ALPHA .000
 ELEVON .000



HEAT TRANSFER COEFFICIENT RATIO, H/H₀

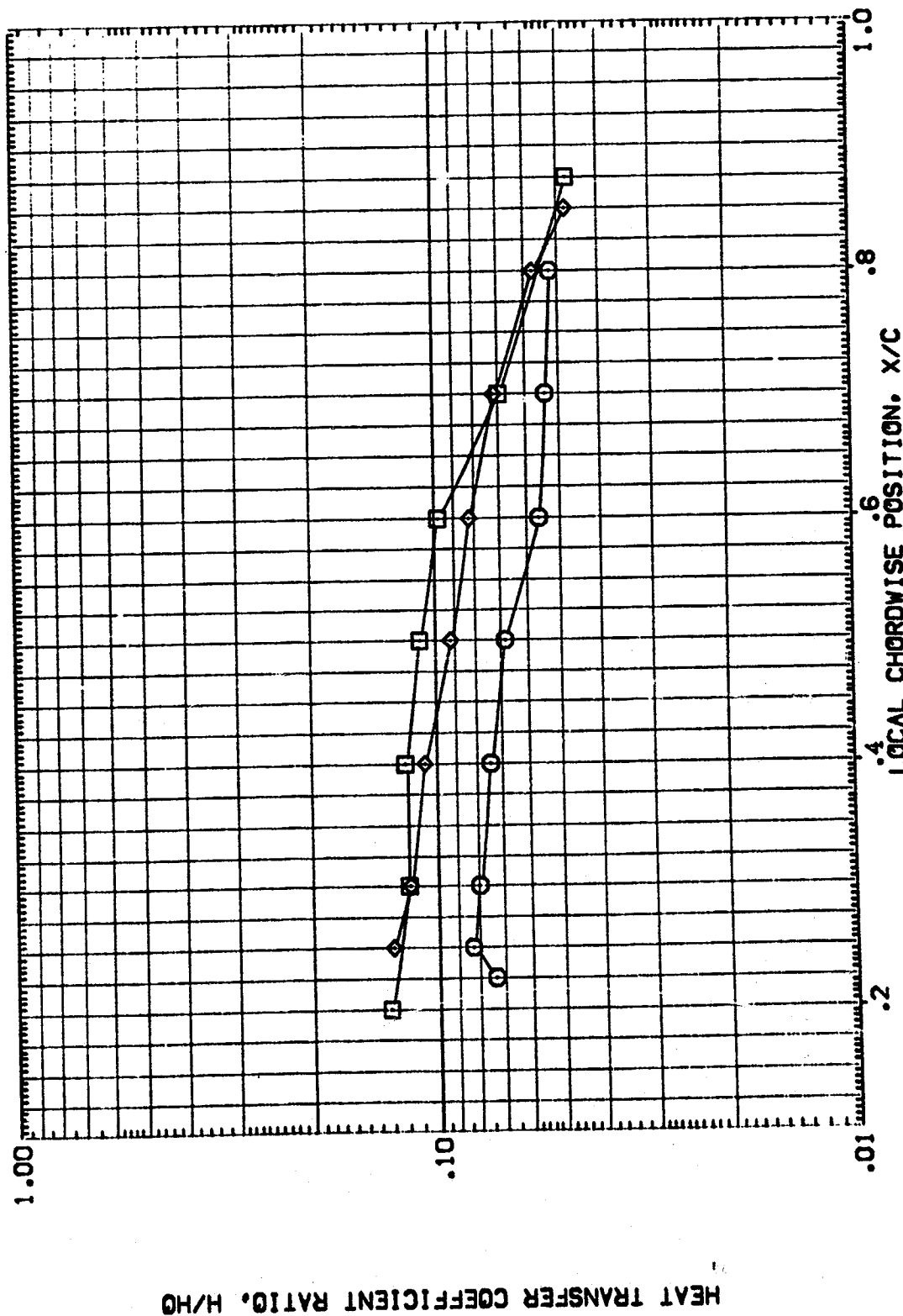
LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

QH13 B10C5W87D7F4M3V5

(WP00002)

SYMBOL	2Y/B	HAW/HT	RV/L	PARAMETRIC VALUES		
□	.400	.850	1.000	MACH	8.000	30.000
◇	.600			BETA	.000	.000
◇	.800			RUDDER	.000	



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

QH13 B10C5W87D7F4M3V5

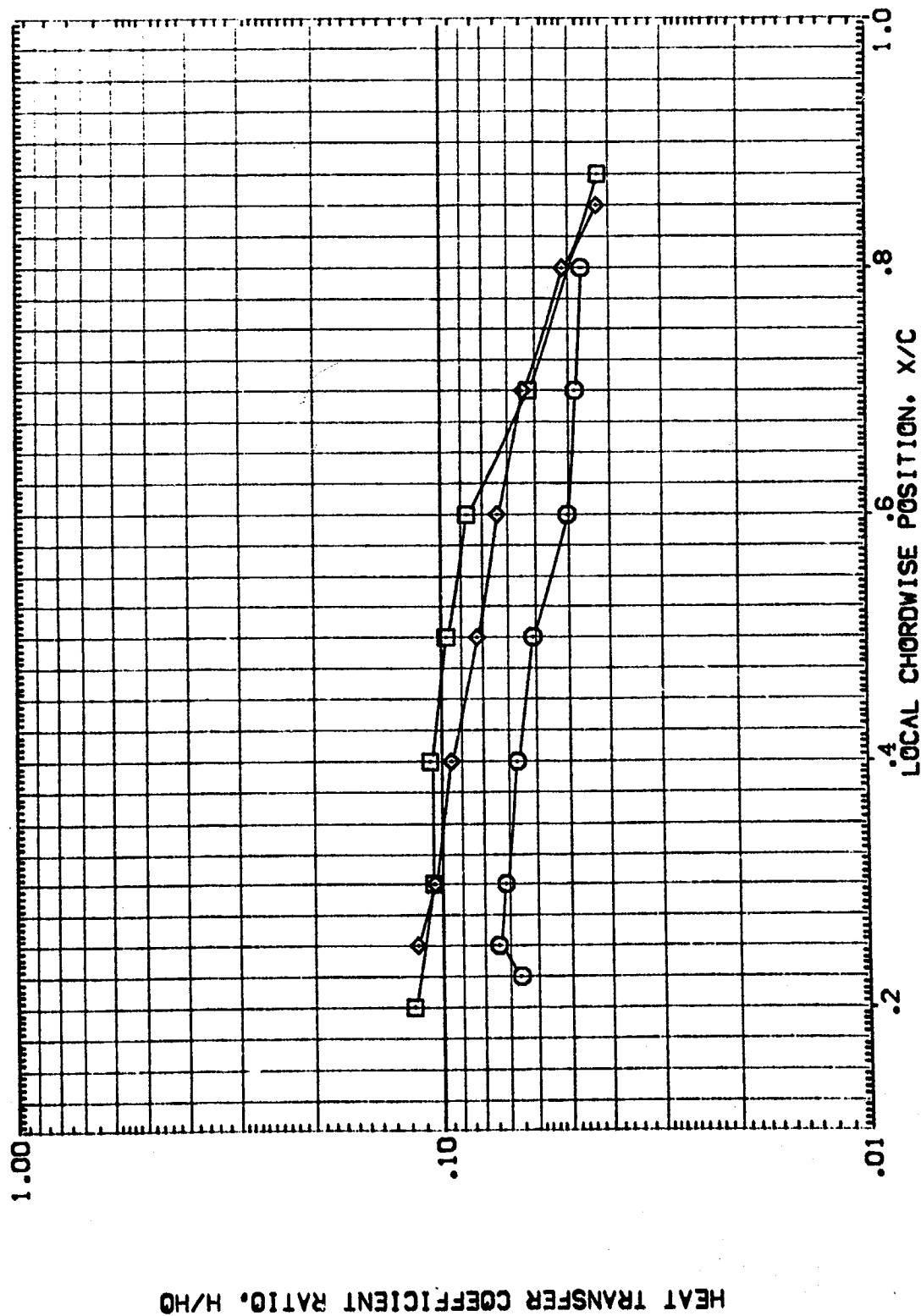
(WP0002)

SYMBOL
 □
 ○
 ◇

21/8
 .400
 .600
 .800

MACH
 1.000
 1.000

PARAMETRIC VALUES
 MACH 8.000
 BETA .000
 RUDDER .000
 ALPHA 30.000
 ELEVON .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

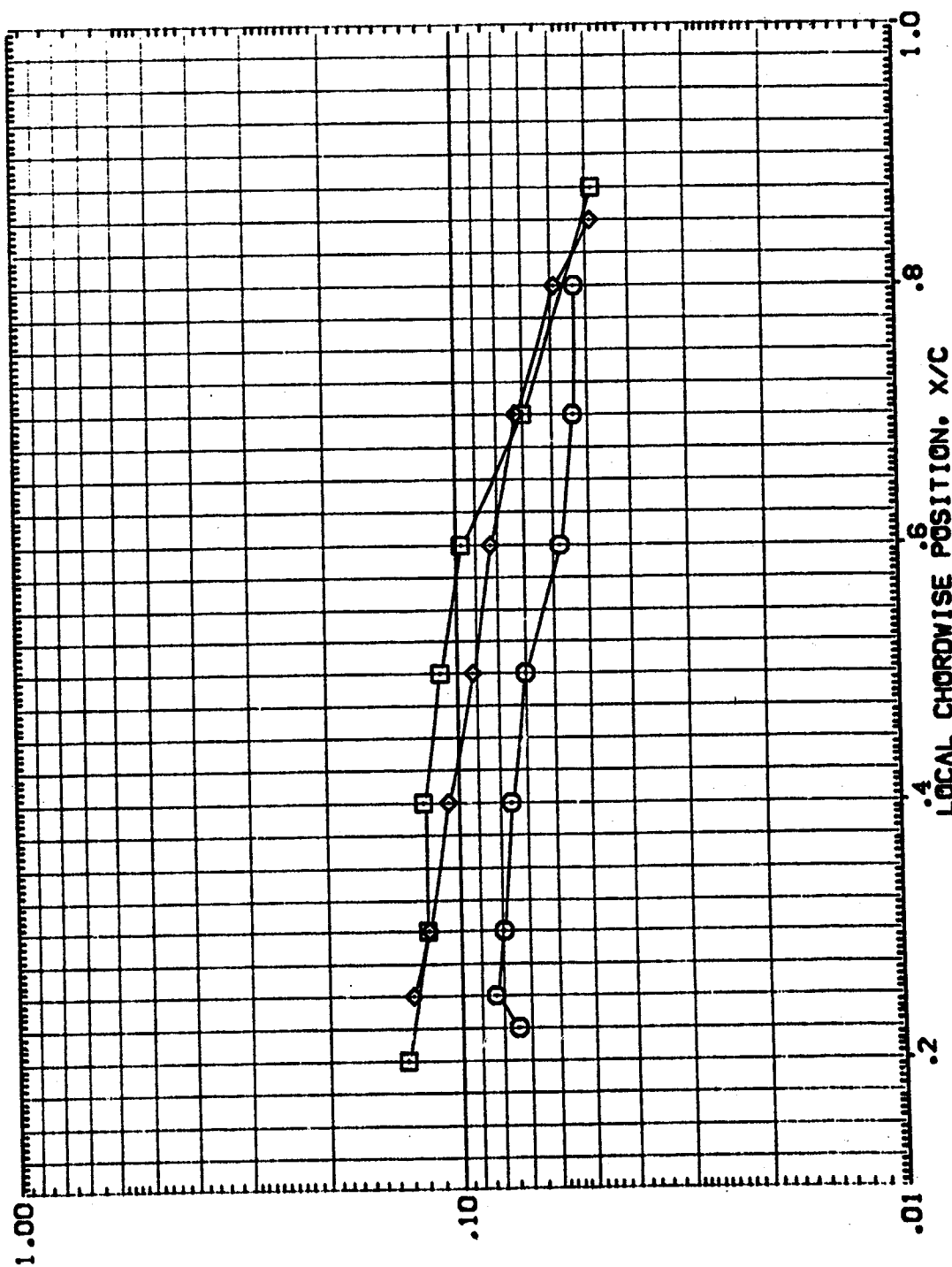
0H13 B10C5W87D7F4M3V5

(WP0002)

PARAMETRIC VALUES
 MACH 8.000 ALPHA 30.000
 BETA .000 ELEVON .000
 RUDDER .000

27/8 .400 .600 .800
 HAV/AT .950 2.000
 RV/L

SYMBOL
 ◇ □ ○



HEAT TRANSFER COEFFICIENT RATIO, H/HG

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

OH13 B10C5W87D7F4M3V5

(WP0002)

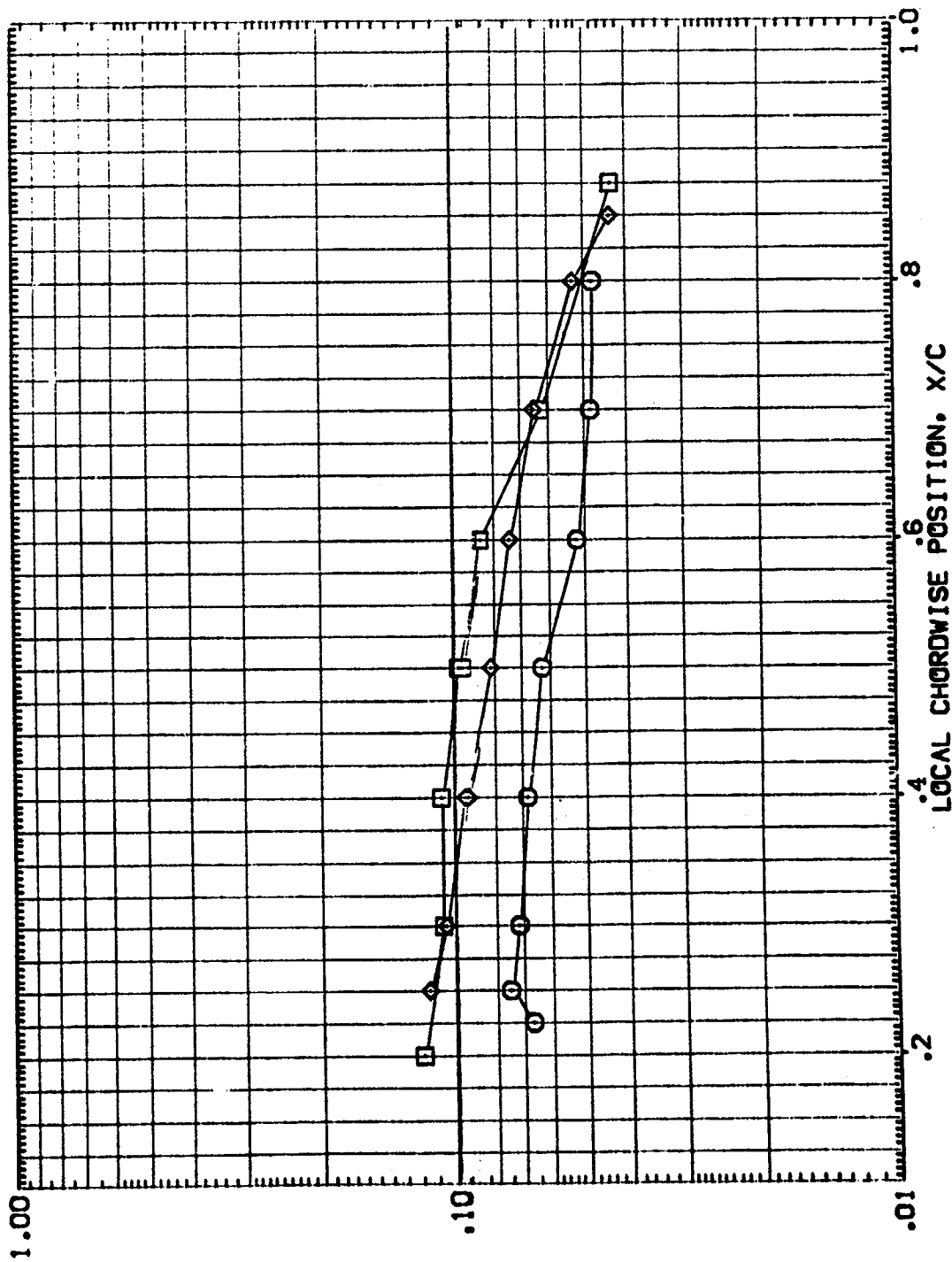
SYMBOL
□ ○ ◇

21/8
.400
.600
.800

H/W/MT
1.000
2.000

RV/L

PARAMETRIC VALUES
MACH 8.000 ALPHA 30.000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

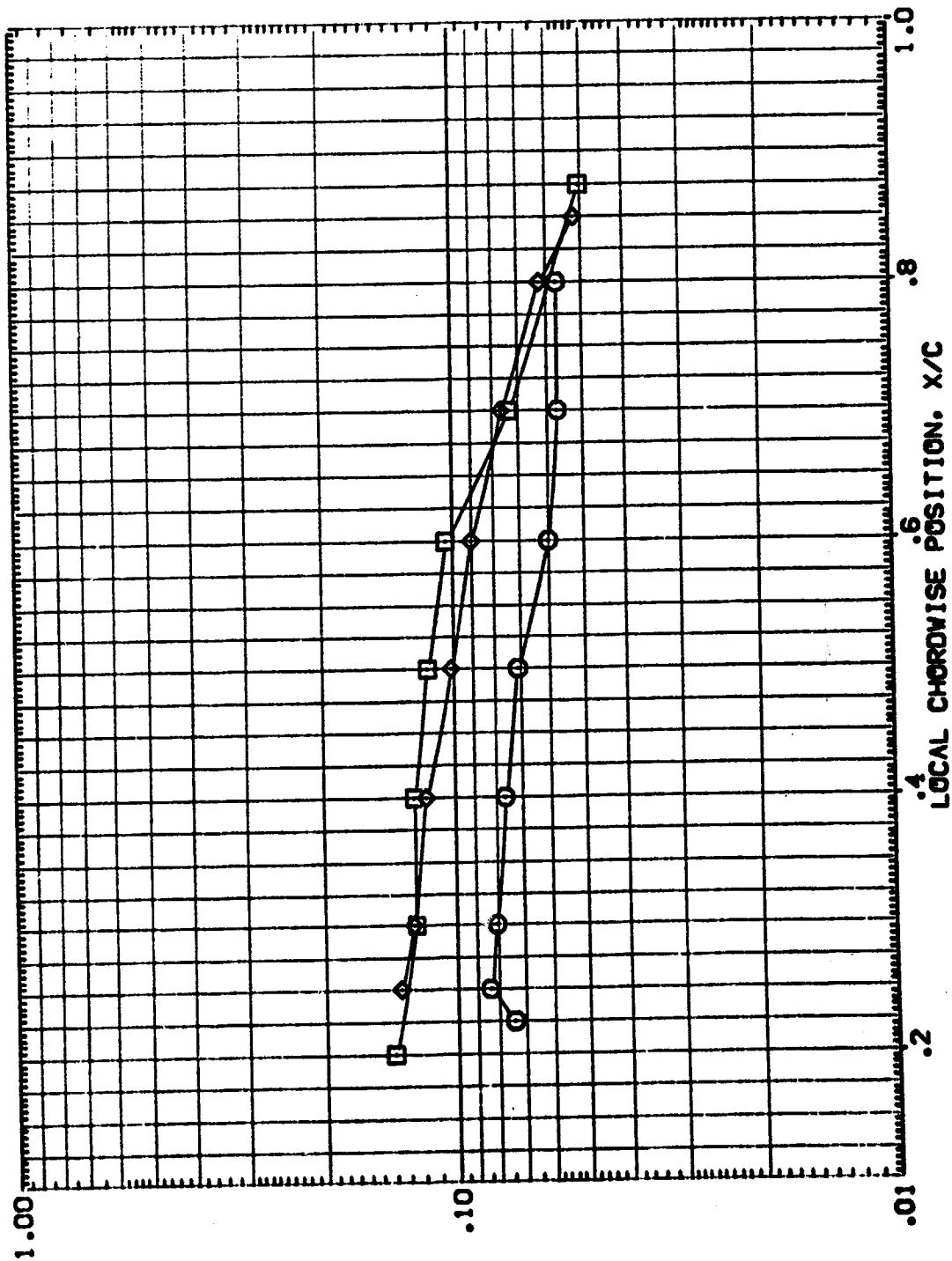
0H13 810C5W8707F4M3V5

(WP00002)

SYMBOL
 □
 ○
 ◇

21/B NAV/AT RN/L
 .400 .850 3.000
 .600
 .800

PARAMETRIC VALUES
 MACH ALPHA 30.000
 BETA .000 ELEVON
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H₀

LOCAL CHORDWISE POSITION, X/C

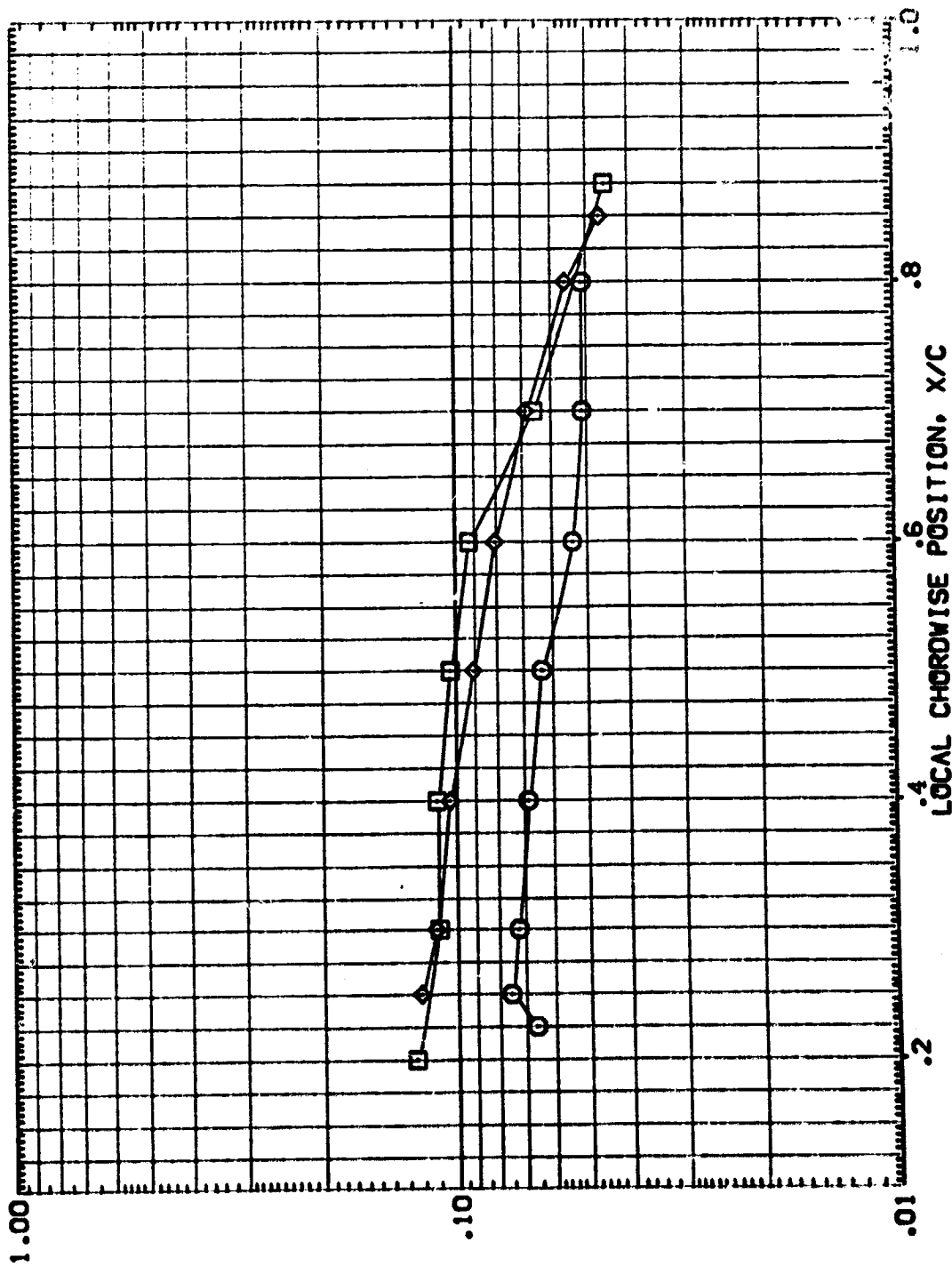
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

CH13 B10C5W8707F4M3V5

(WP0002)

PARAMETRIC VALUES
 MACH: 8.000 ALPHA: 30.000
 BETA: .000 ELEVON: .000
 RUDDER: .000

SYMBOL: 27/8 HAV/WT 3000
 .400
 .500
 .600



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

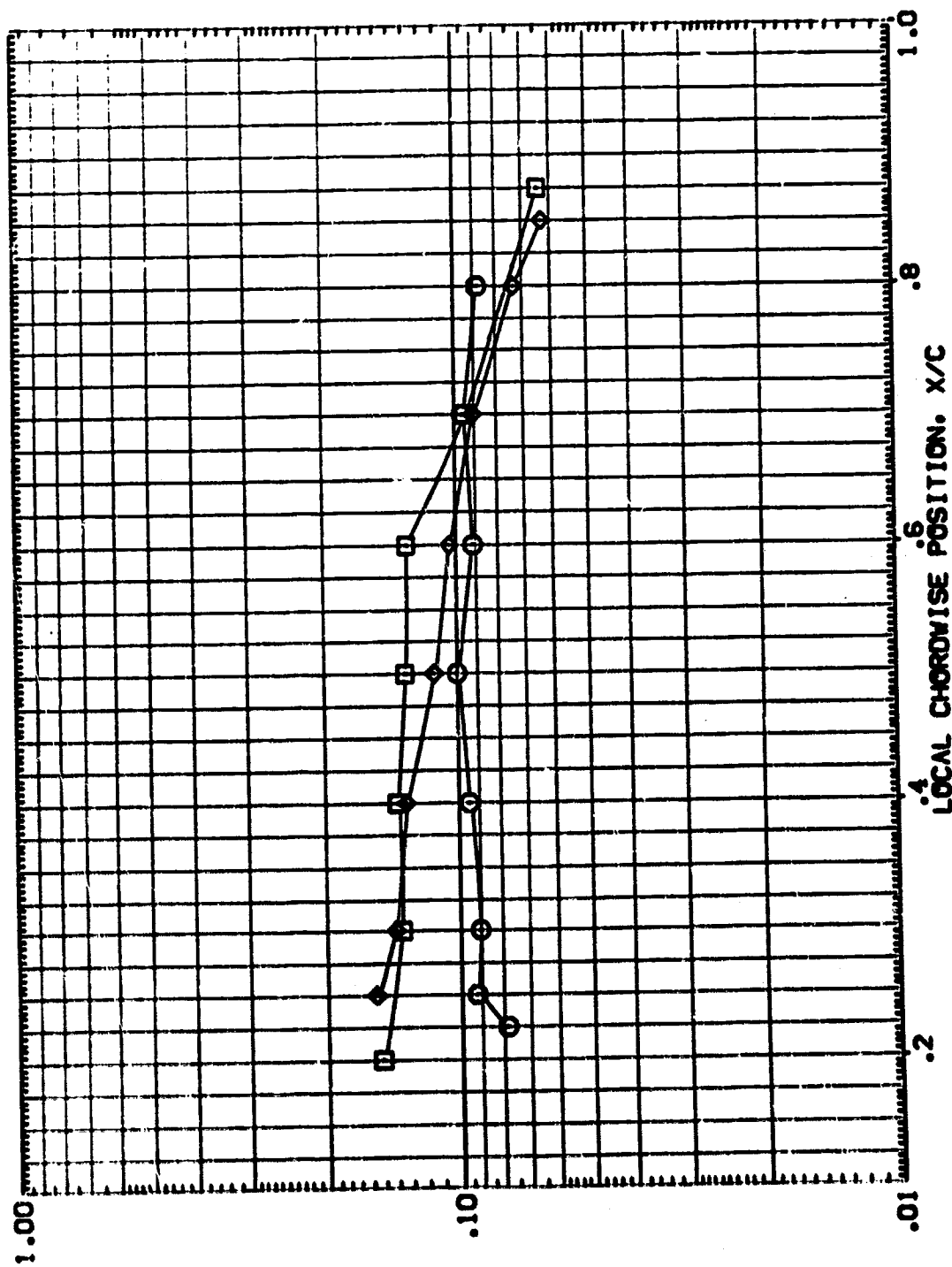
0413 810C5W8707F4M3V5

SYMBOL
 □
 ○
 ◇

21/0 MACH .400
 .600
 .800
 MACH .650 4.000

(WP0002)

PARAMETRIC VALUES
 MACH 9.000 ALPHA 30.000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHORDWISE POSITION, X/C

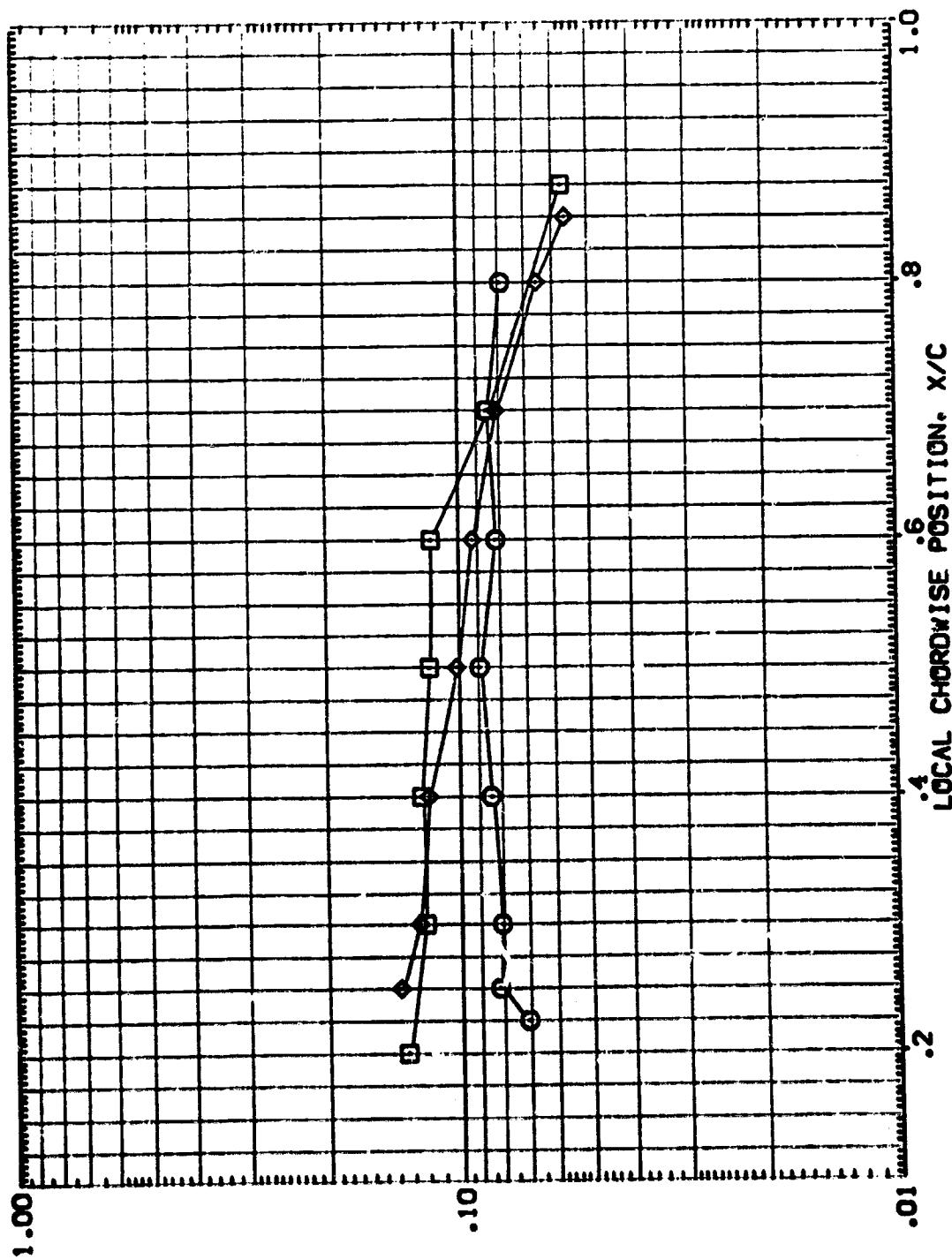
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

OH13 B10C5W87D7F4M3V5

SYMBOL 27/8 144/417 144/417 144/417
 .400 .800 .800 .800

(WP0002)

PARAMETRIC VALUES
 MACH 9.000 ALPHA 30.000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

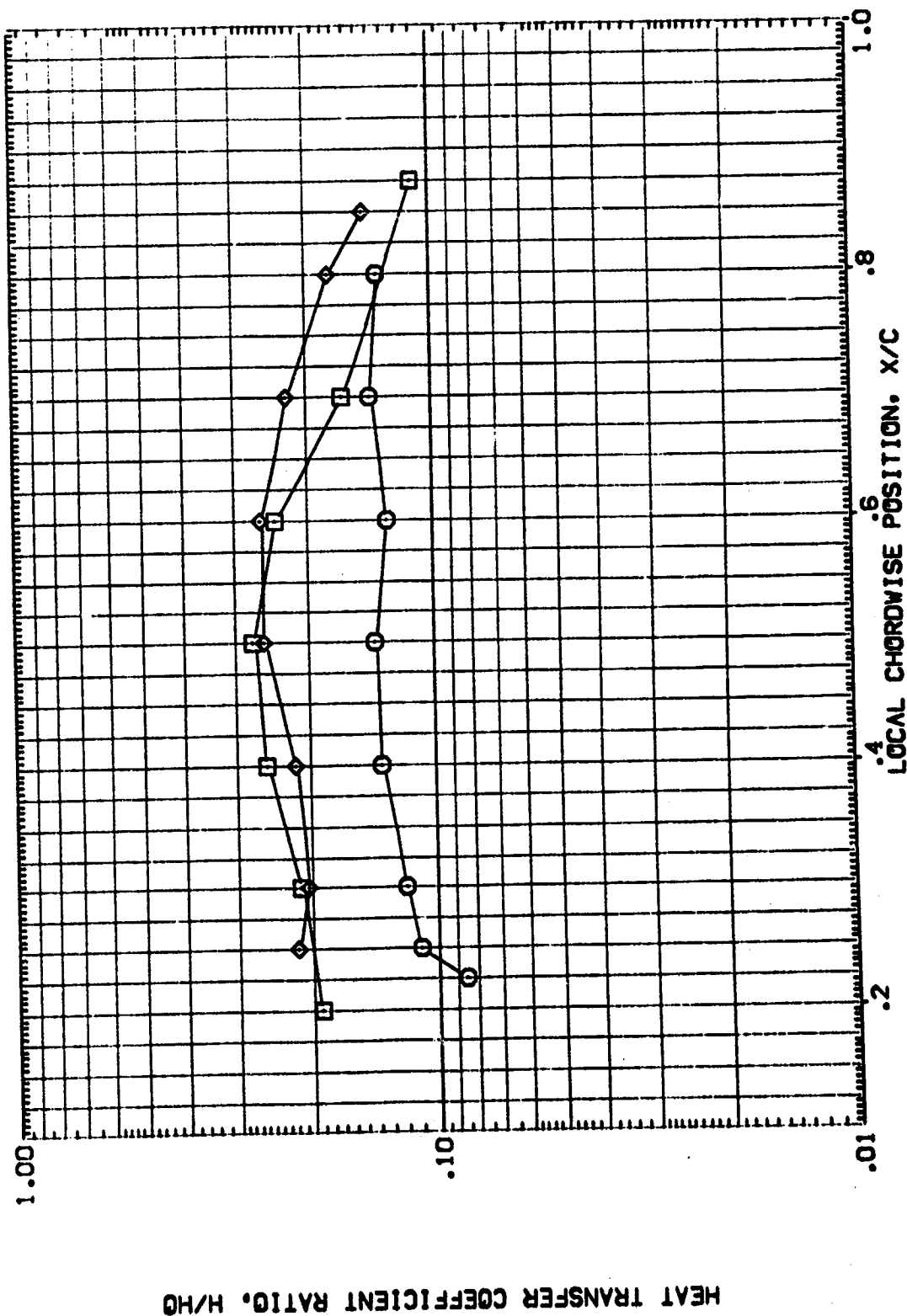
(WP00002)

0H13 B10C5W87D7F4M3V5

SYMBOL
□
○
◇

2V/B .400
H/W/H/T .850
R/V/L 6.000

PARAMETRIC VALUES
MACH 8.000 ALPHA 30.000
BETA .000 ELEVON .000
RUDDER .000



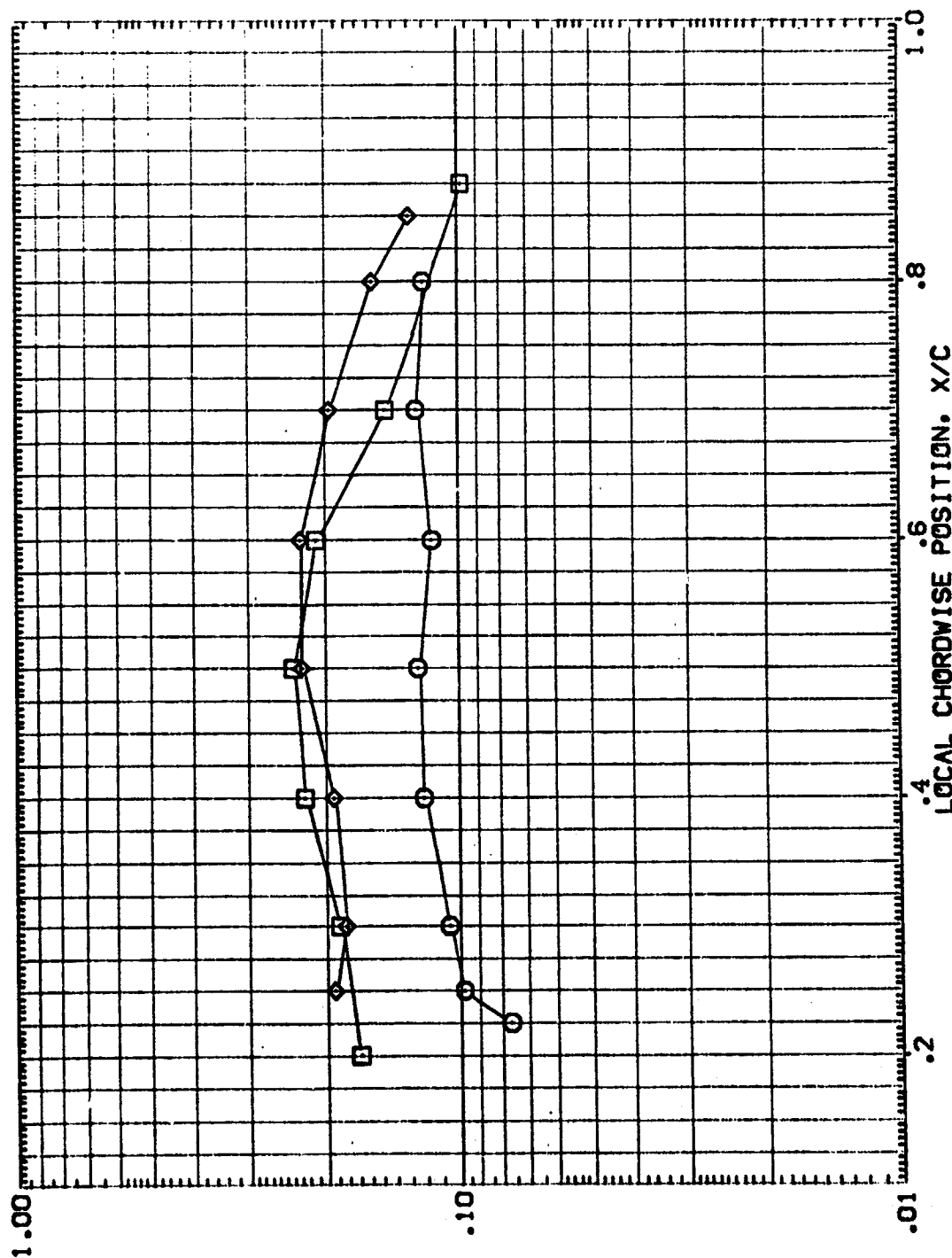
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

0H13 B10C5W87D7F4M3V5

(WP00002)

SYMBOL 21/8 HAWAIT RV/L
 .400 1.000 6.000
 .600
 .800

PARAMETRIC VALUES
 MACH 8.000 ALPHA 30.000
 BETA .000 ELEVON .000
 RUDDER .000



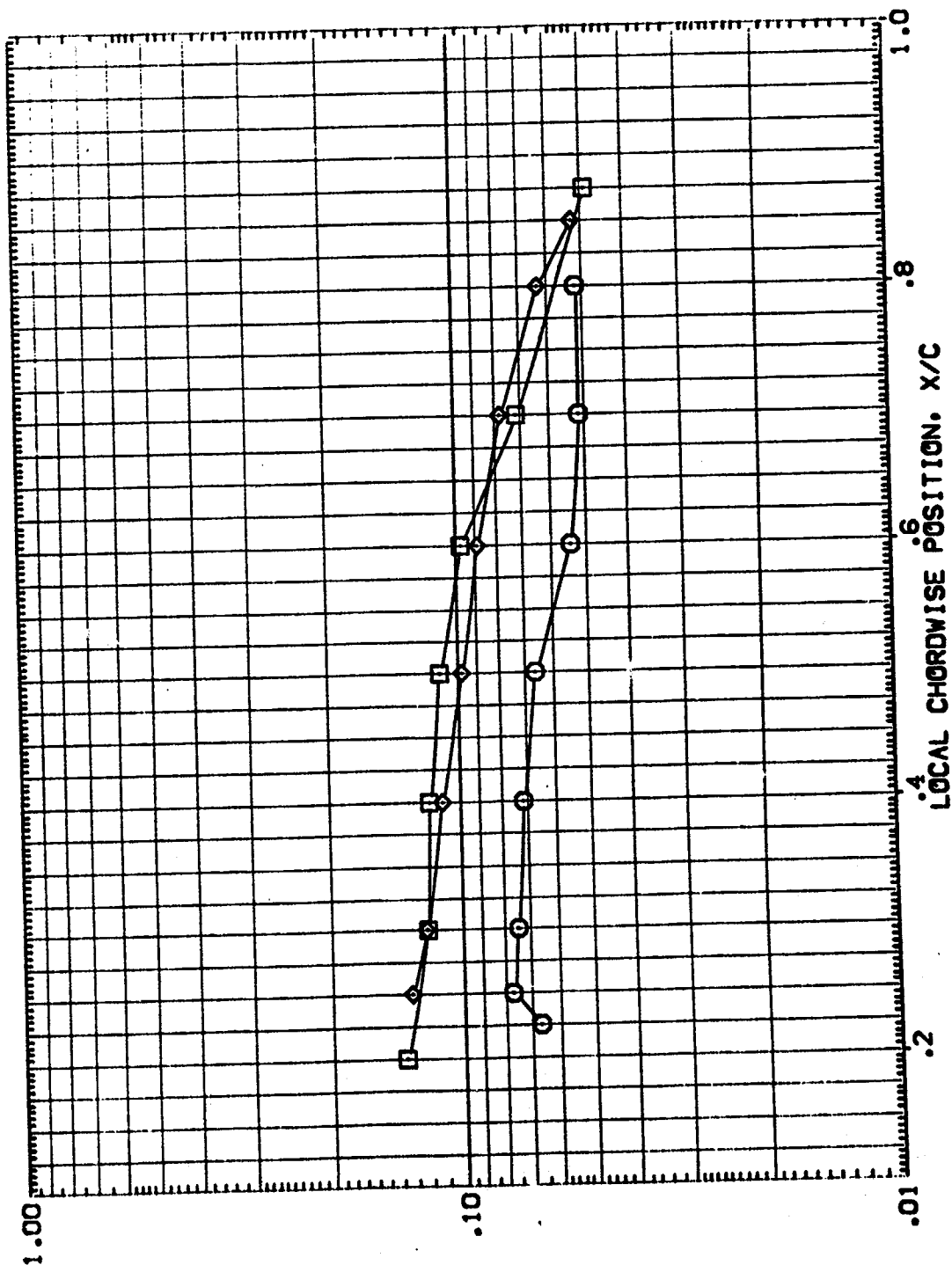
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

0H13 B10C5W87D7F4M3V5

(WP00003)

SYMBOL
◇
□
○

2V/B .400
HAW/MT .650
R/V/L 1.000
MACH 8.000
BETA .000
RUDDER .000
ALPHA 35.000
ELEVON .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

OH13 B10CSW87D7F4M3V5

(WP00003)

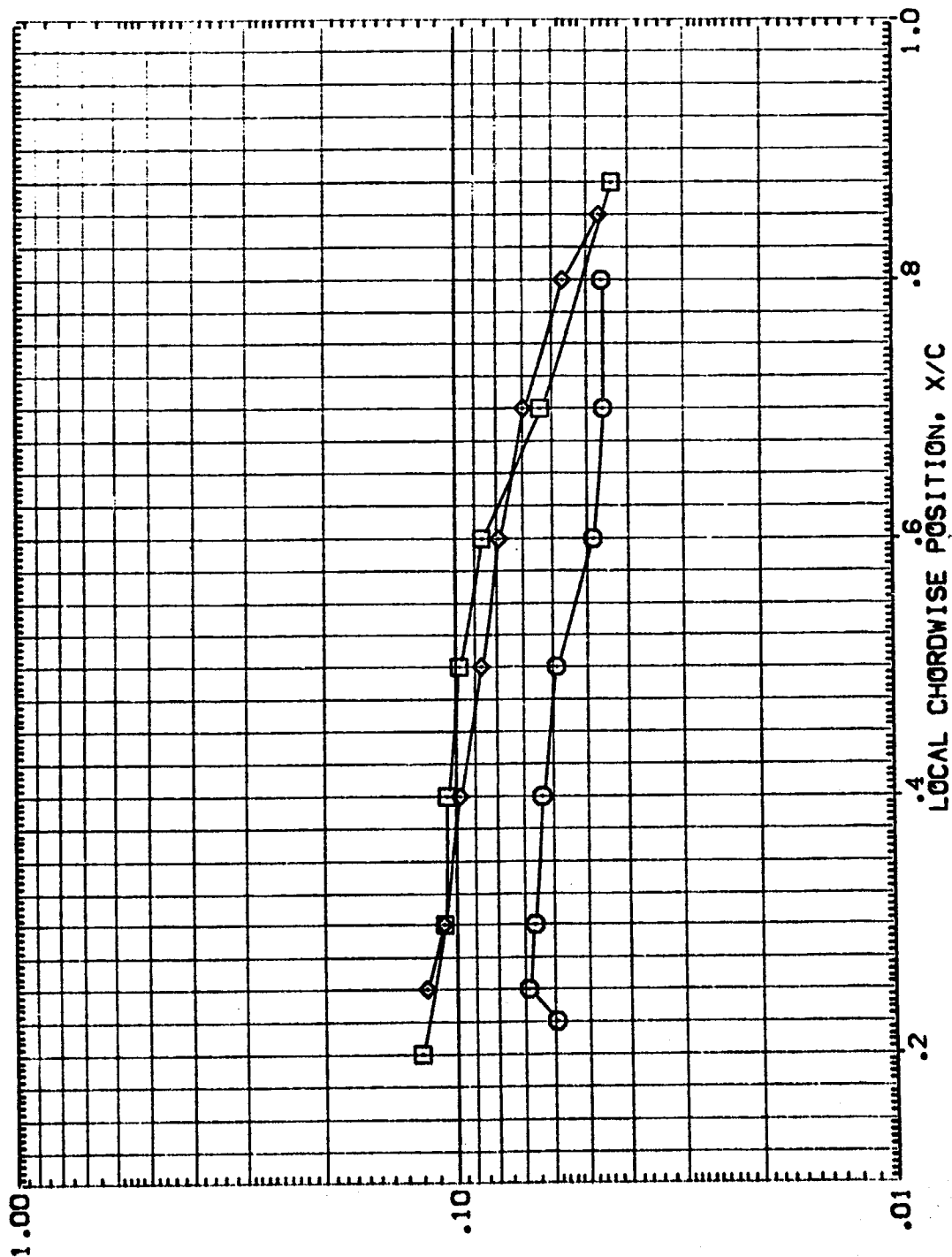
SYMBOL
 ◇
 □
 ○

21/8
 .400
 .600
 .800

HAW/HT
 1.000
 1.000

RV/L
 1.000

PARAMETRIC VALUES
 MACH 8.000 ALPHA 35.000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H₀

LOCAL CHORDWISE POSITION, X/C
 .2 .4 .6 .8 1.0
 HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

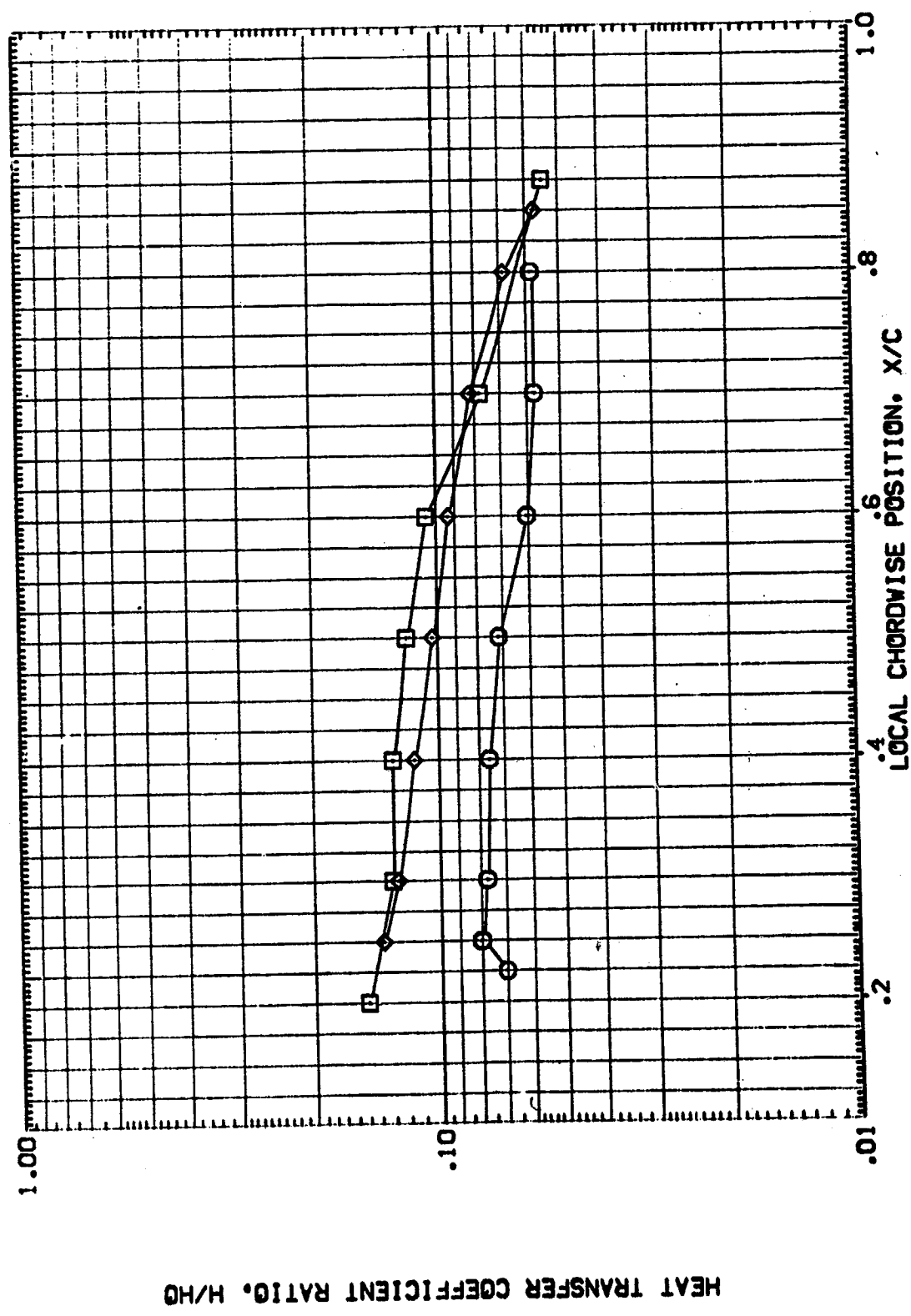
CH13 810C5W87D7F4M3V5

(WP00003)

SYMBOL
 □
 ○
 ◇

2V/B .400
 MACH .850
 RV/L 2.000

PARAMETRIC VALUES
 MACH 8.000
 BETA .000
 RUDDER .000
 ALPHA 35.000
 ELEVON .000



HEAT TRANSFER COEFFICIENT RATIO, H/H₀

LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

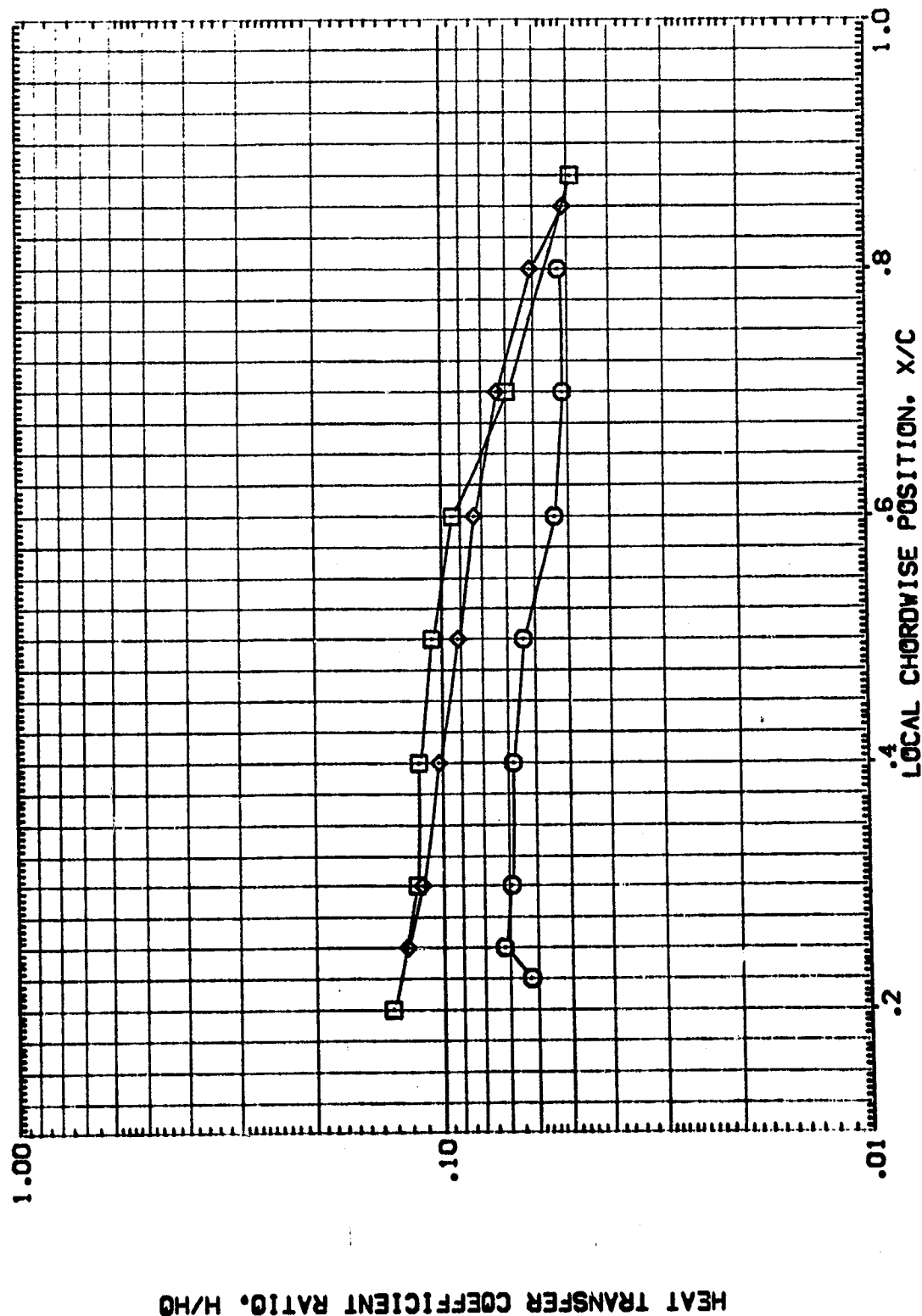
0H13 B10C5W87D7F4M3V5

(WP00003)

SYMBOL
 □
 ○
 ◇

21/8
 .400
 .600
 .800
 MAX/AT
 1.000
 2.000
 REV/L

PARAMETRIC VALUES
 MACH 8.000 ALPHA 35.000
 BETA .000 ELEVON .000
 RUDDER .000

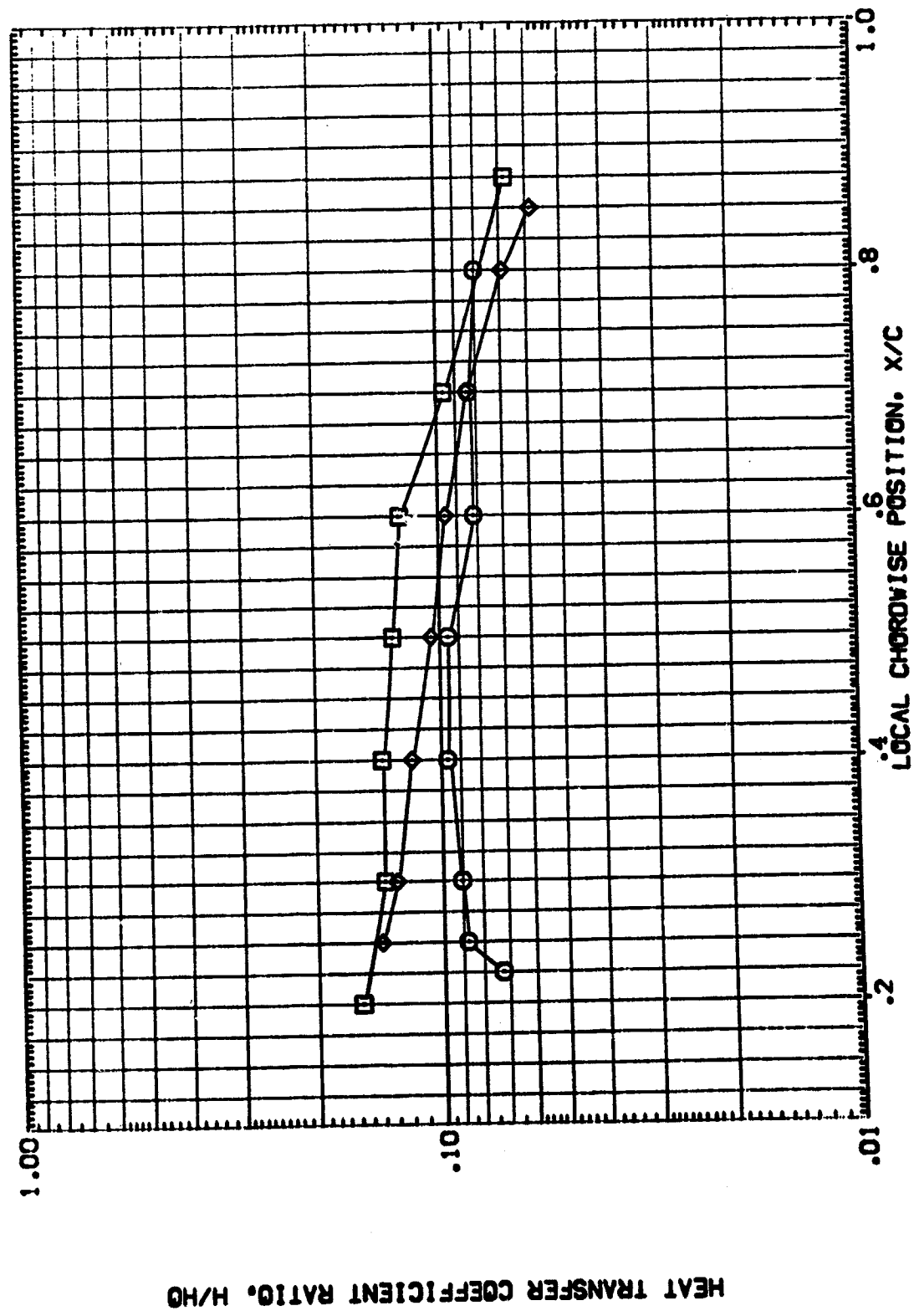


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

CH13 B10CSW87D7F4M3V5

(WP00003)

SYMBOL	21/8	WAV/AT	RV/L	PARAMETRIC VALUES			
□	.400	.550	3.000	MACH	8.000	ALPHA	35.000
◇	.600			BETA	.000	ELEVON	.000
	.800			RUDDER	.000		



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

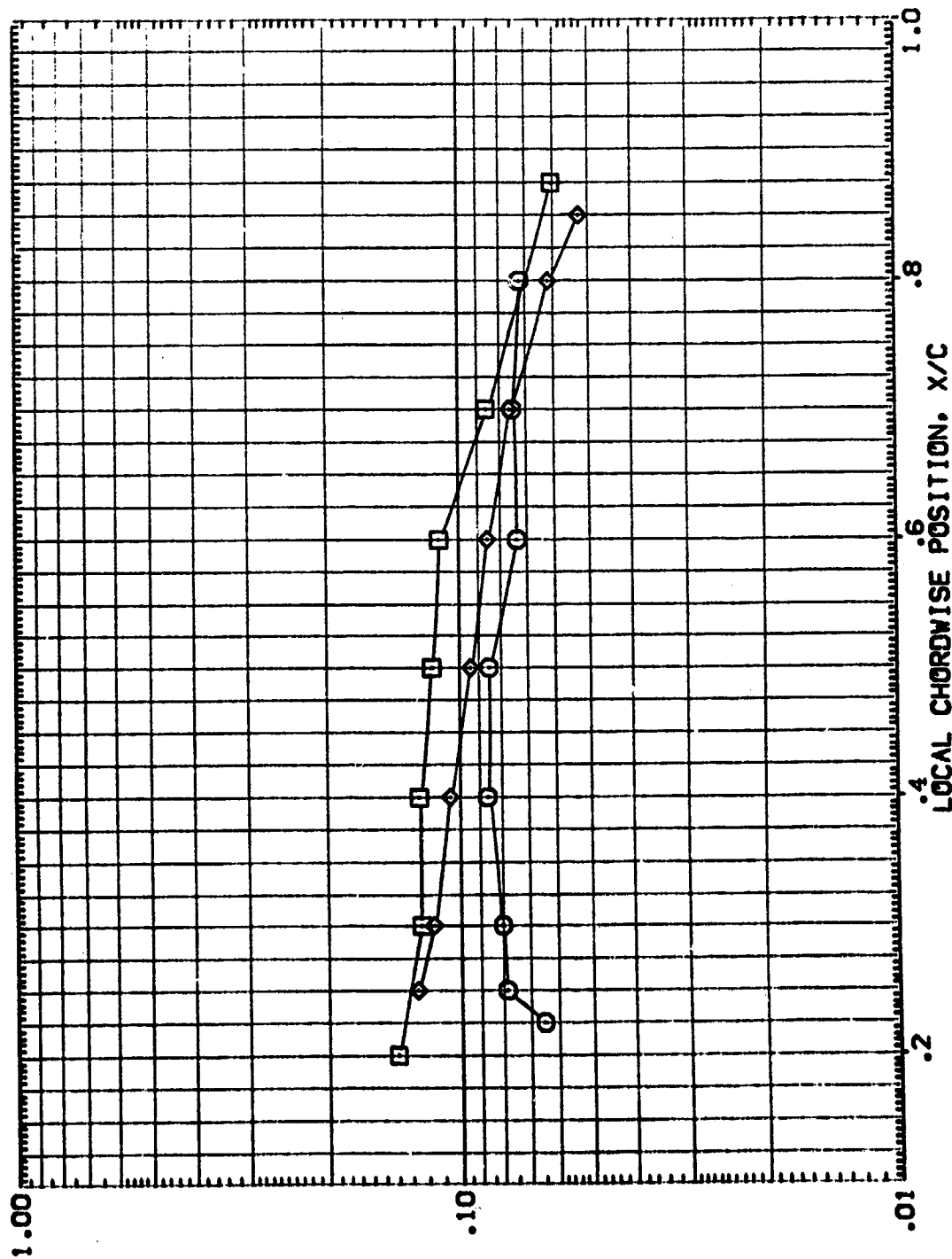
0H13 B10C5W8707F4M3V5

(WP00003)

SYMBOL
◇ □ ○

21/8
MACH
BETA
RUDDER
35.000
8.000
.000
.000

PARAMETRIC VALUES
MACH
BETA
RUDDER
35.000
8.000
.000
.000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

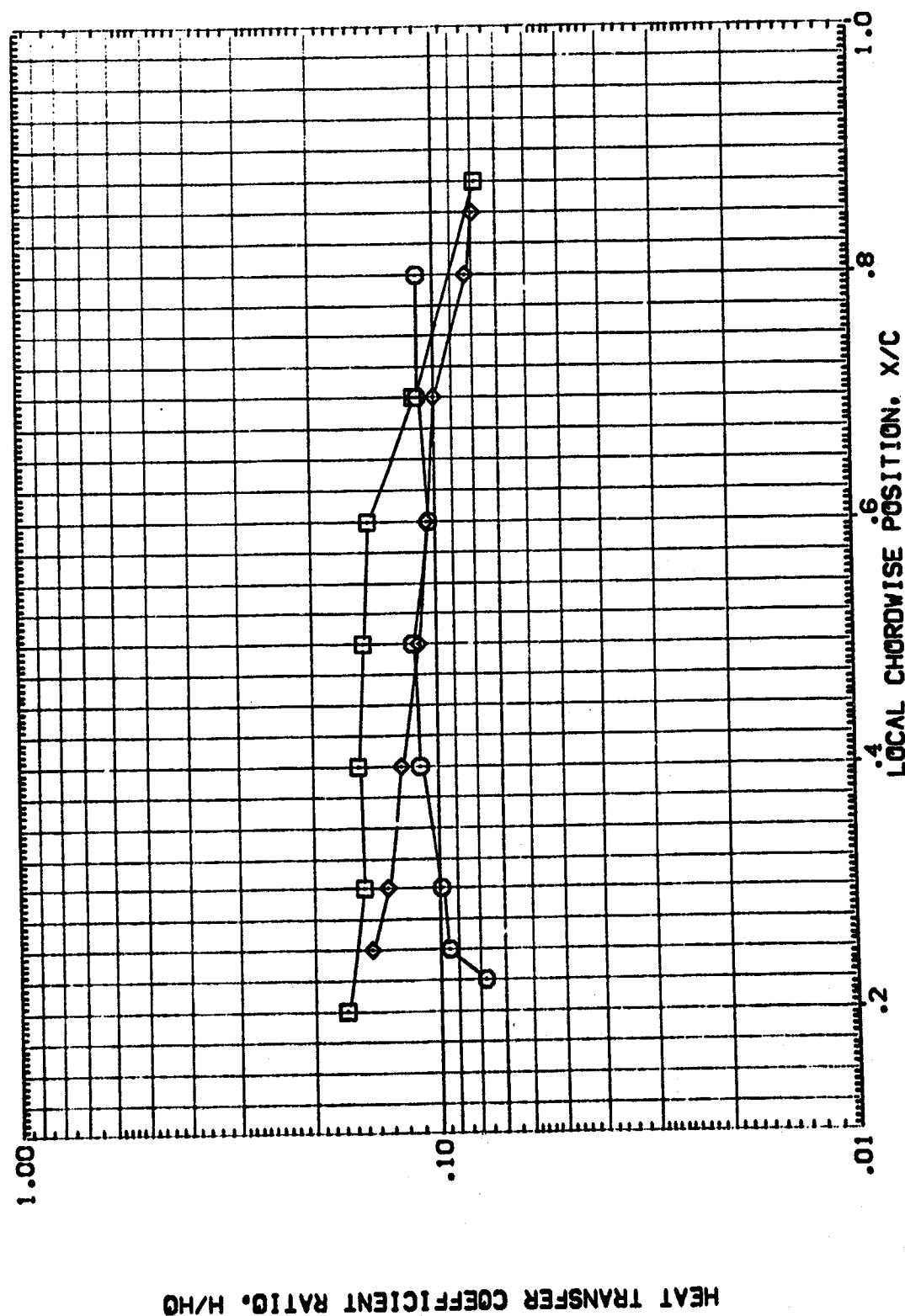
LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

CH13 B10C5W87D7F4M3V5

(WP00003)

SYMBOL	21/8	WAV/MT	RV/L	PARAMETRIC VALUES		
□	.400	.850	4.000	MACH	8.000	ALPHA
◇	.600			BETA	.000	ELEVON
	.800			RUDDER	.000	



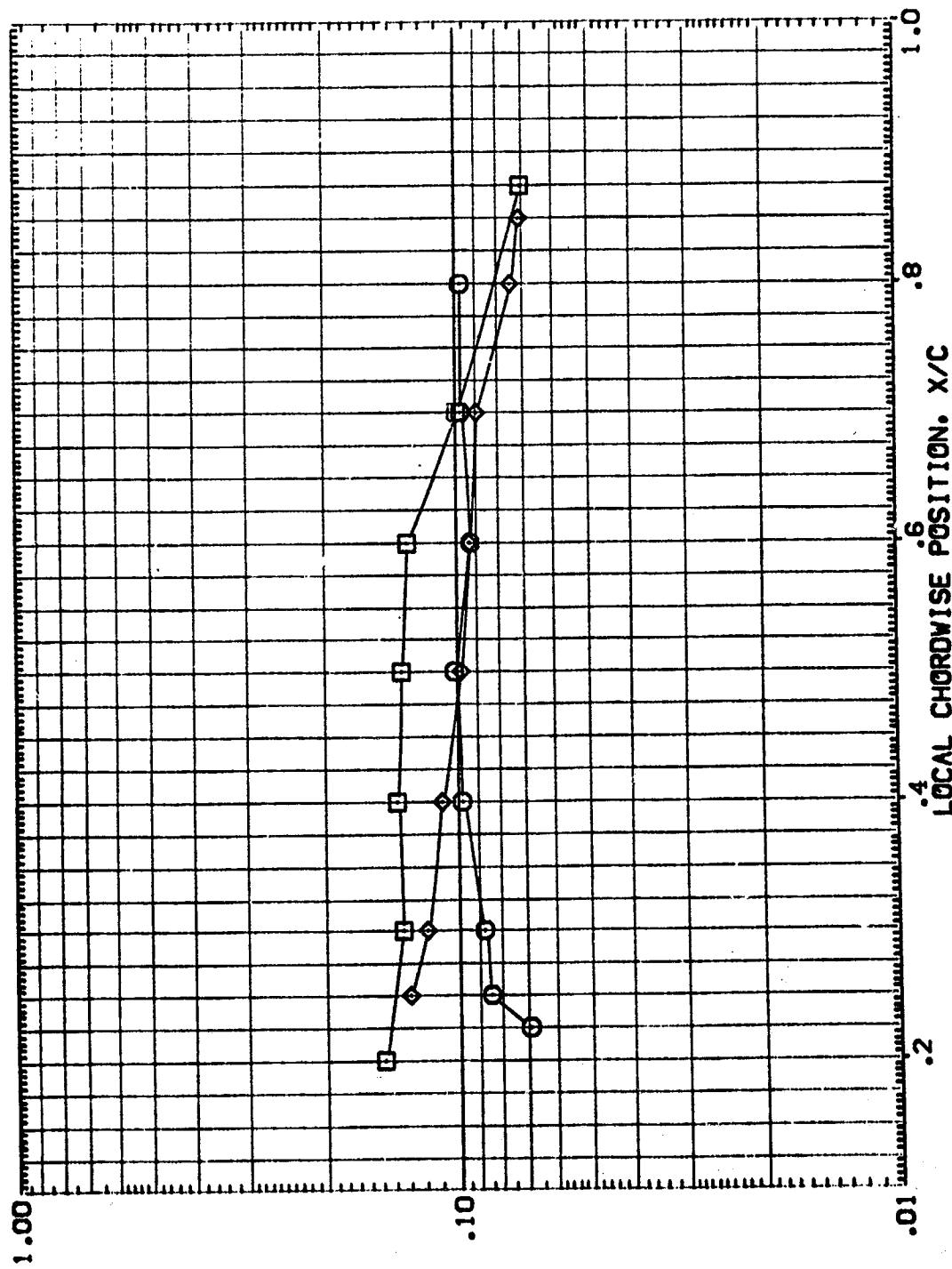
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

OH13 B10C5W87D7F4M3V5

(WP0003)

SYMBOL 21/8 MACH/MIN REYNOLDS
 □ 1.000 4.000
 ○ .400 .800
 ◇ .000 .000

PARAMETRIC VALUES
 MACH 8.000 ALPHA 35.000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H₀

LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

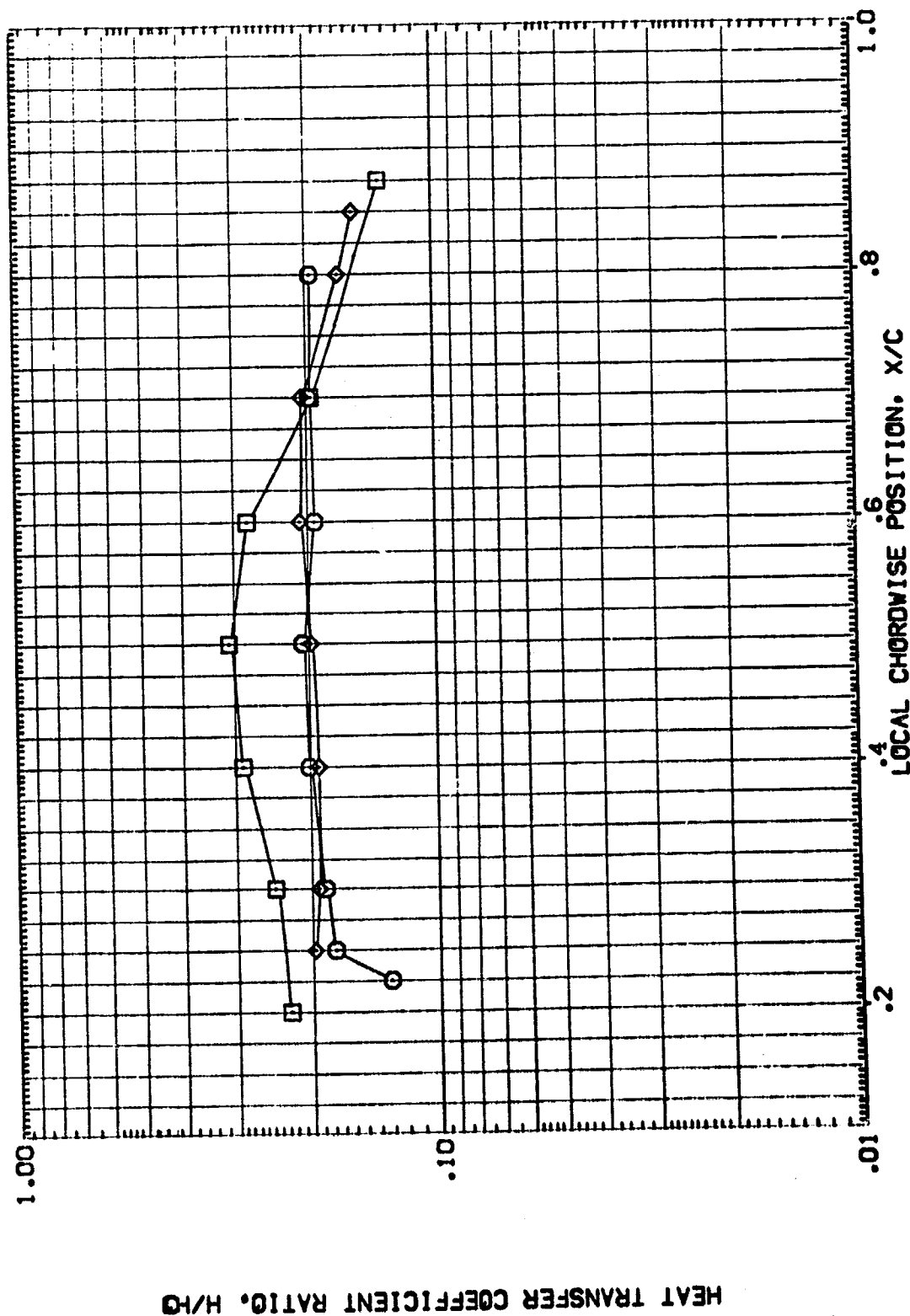
0H13 B10C5W87D7F4M3V5

(WP00003)

SYMBOL
 ○ □ ◇

Z1/B .400
 .600
 .800
 HAV/HT .850
 RV/L 6.000

PARAMETRIC VALUES
 MACH 8.000
 BETA .000
 RUDDER .000
 ALPHA 35.000
 ELEVON .000



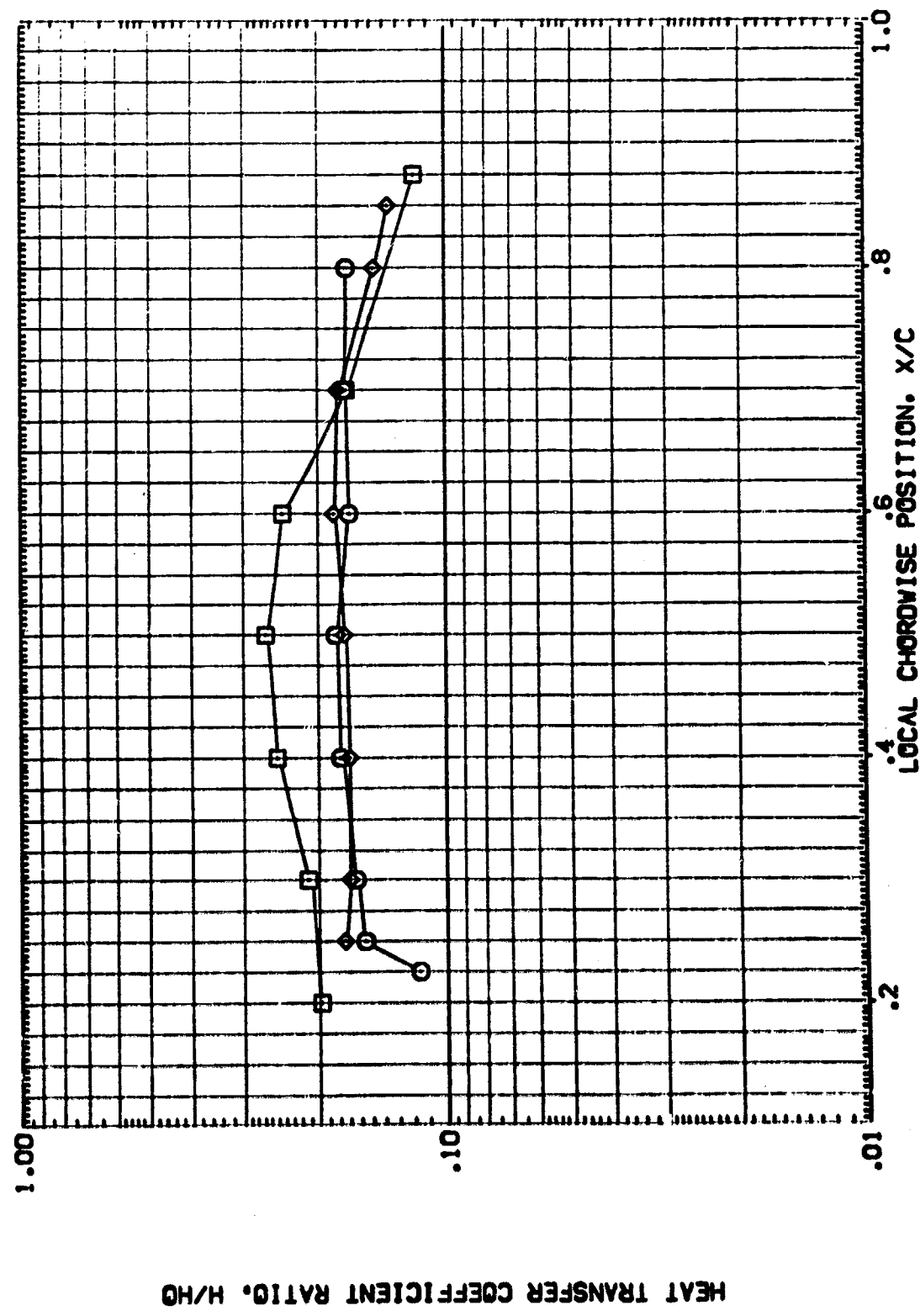
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

0H13 B10C5W87D7F4M3V5

(WP00003)

SYMBOL 21/8 MACH NUMBER 6.000
 □ 1.000
 ◇ 1.800

PARAMETRIC VALUES
 MACH 35.000
 BETA 9.000
 RUDDER .000
 ALPHA .000
 ELEVON .000



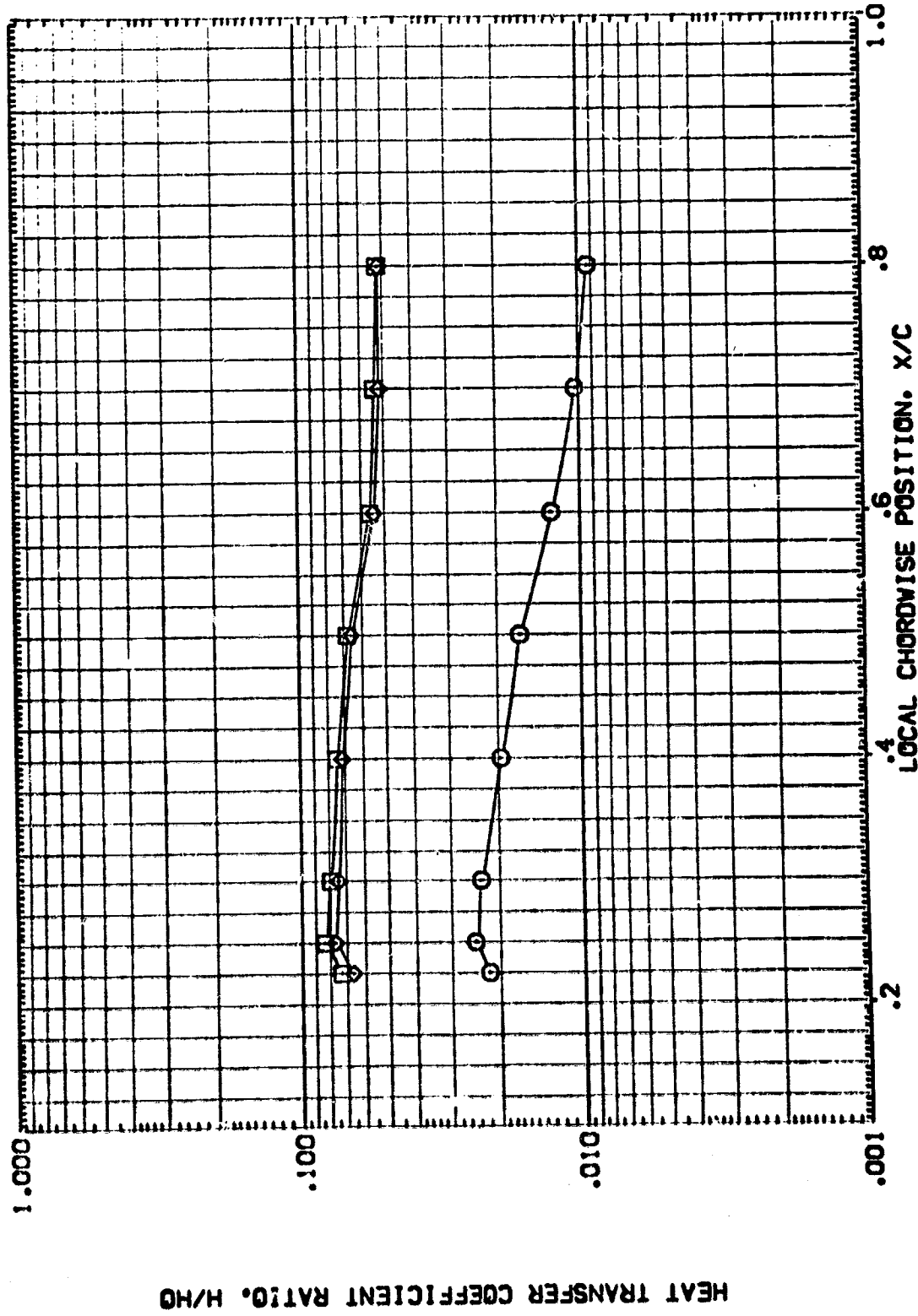
HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHOROVISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {VP0001} Q-13 B10CSW8707K-4P0VS
 {VP0002} Q-13 B10CSW8707K-4P0VS
 {VP0003} Q-13 B10CSW8707K-4P0VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

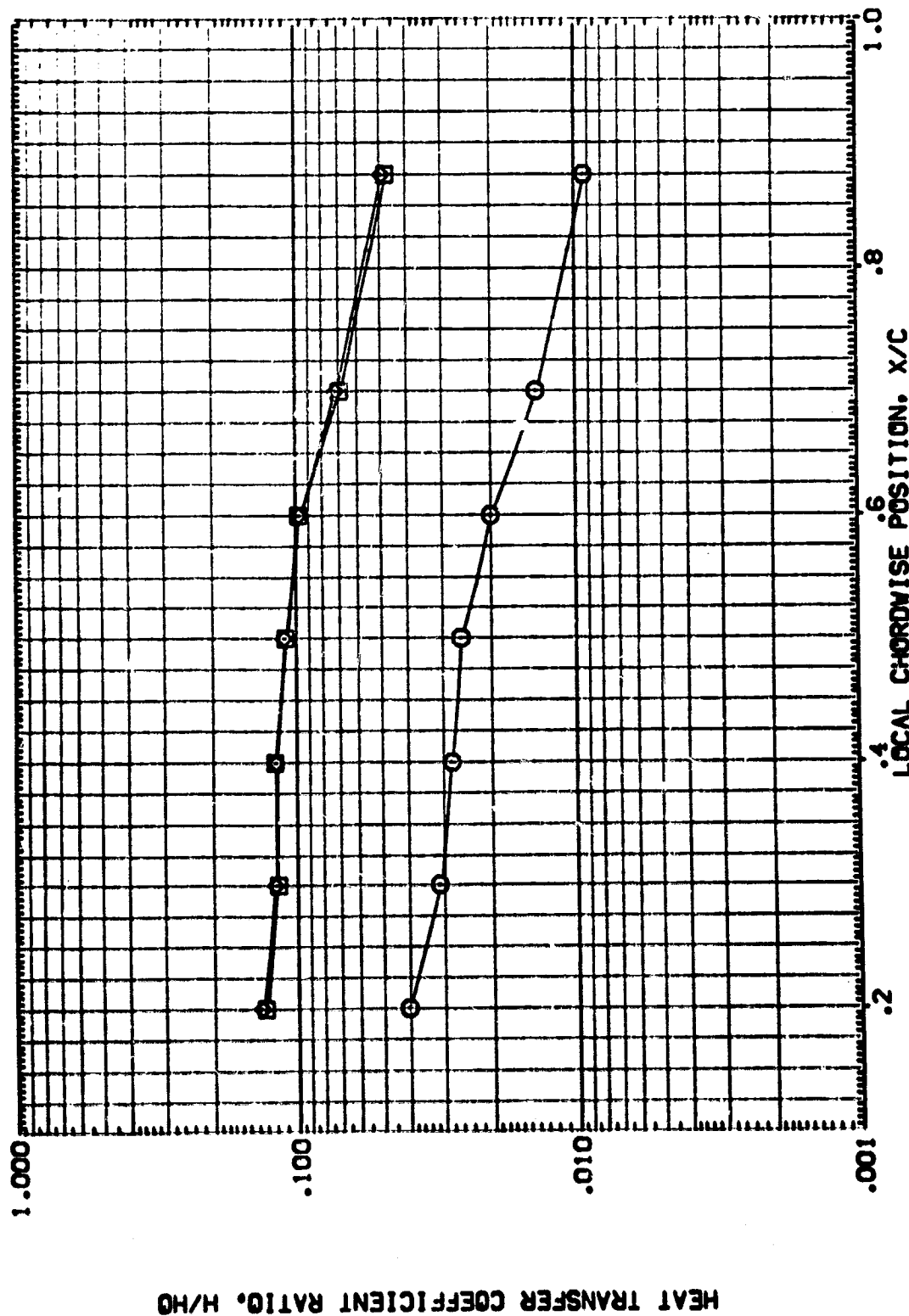


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 1.000 HAW/HT = .850 2Y/B = .400

DATA SET SHED. CONFIGURATION DESCRIPTION
 {W0001} 0413 B10C3W0707-0405
 {W0002} 0413 B10C3W0707-0405
 {W0003} 0413 B10C3W0707-0405

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

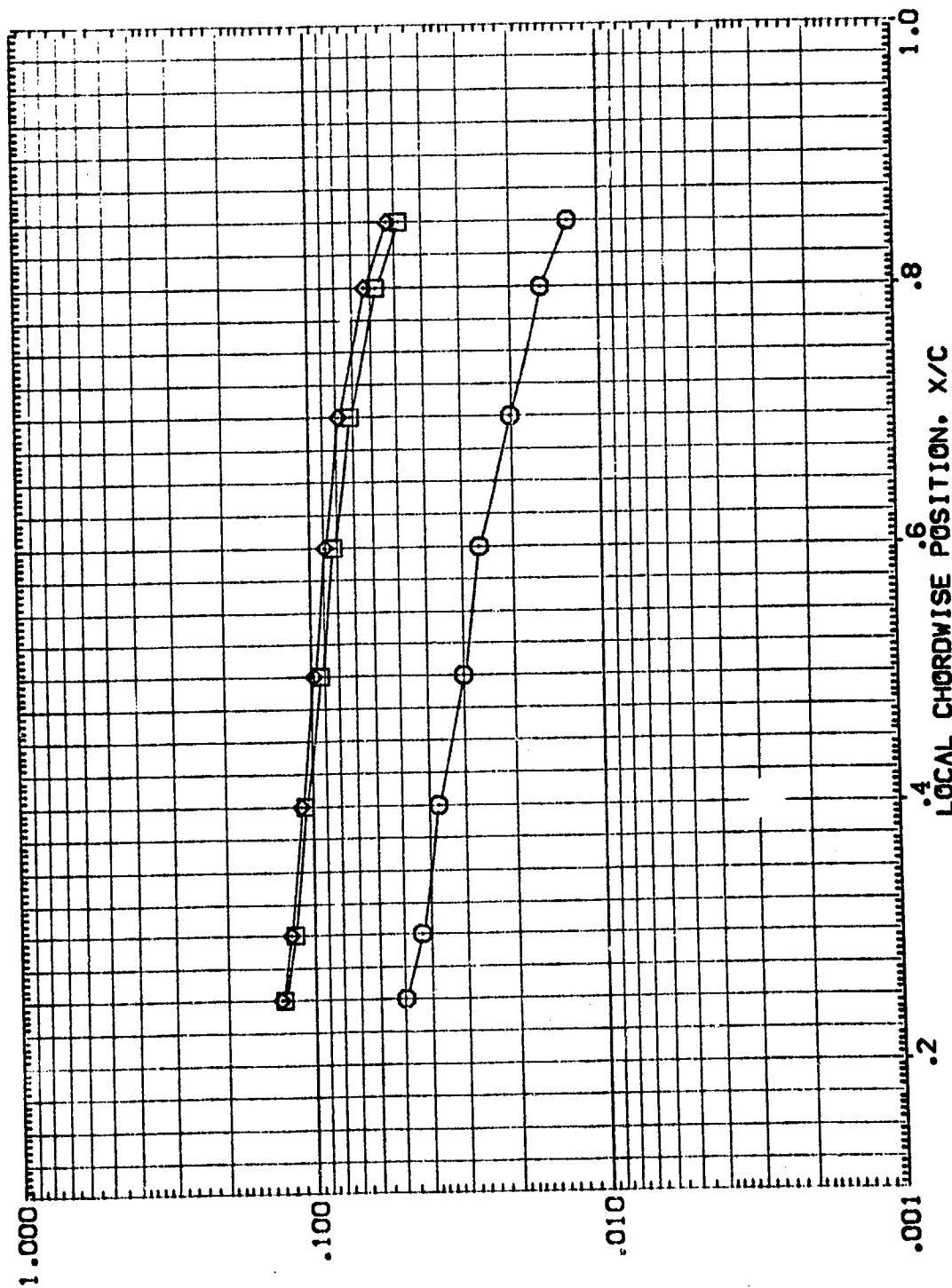


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 1.000 HAW/HT = .850 2Y/B = .600

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVON	BETA	RUDDER
VP0001	0-13 B10CSV8707F-4GVS	.000	.000	.000	.000
VP0002	0-13 B10CSV8707F-4GVS	30.000	.000	.000	.000
VP0003	0-13 B10CSV8707F-4GVS	35.000	.000	.000	.000

DATA SET SYMBOL: VP0001, VP0002, VP0003
 CONFIGURATION DESCRIPTION: 0-13 B10CSV8707F-4GVS



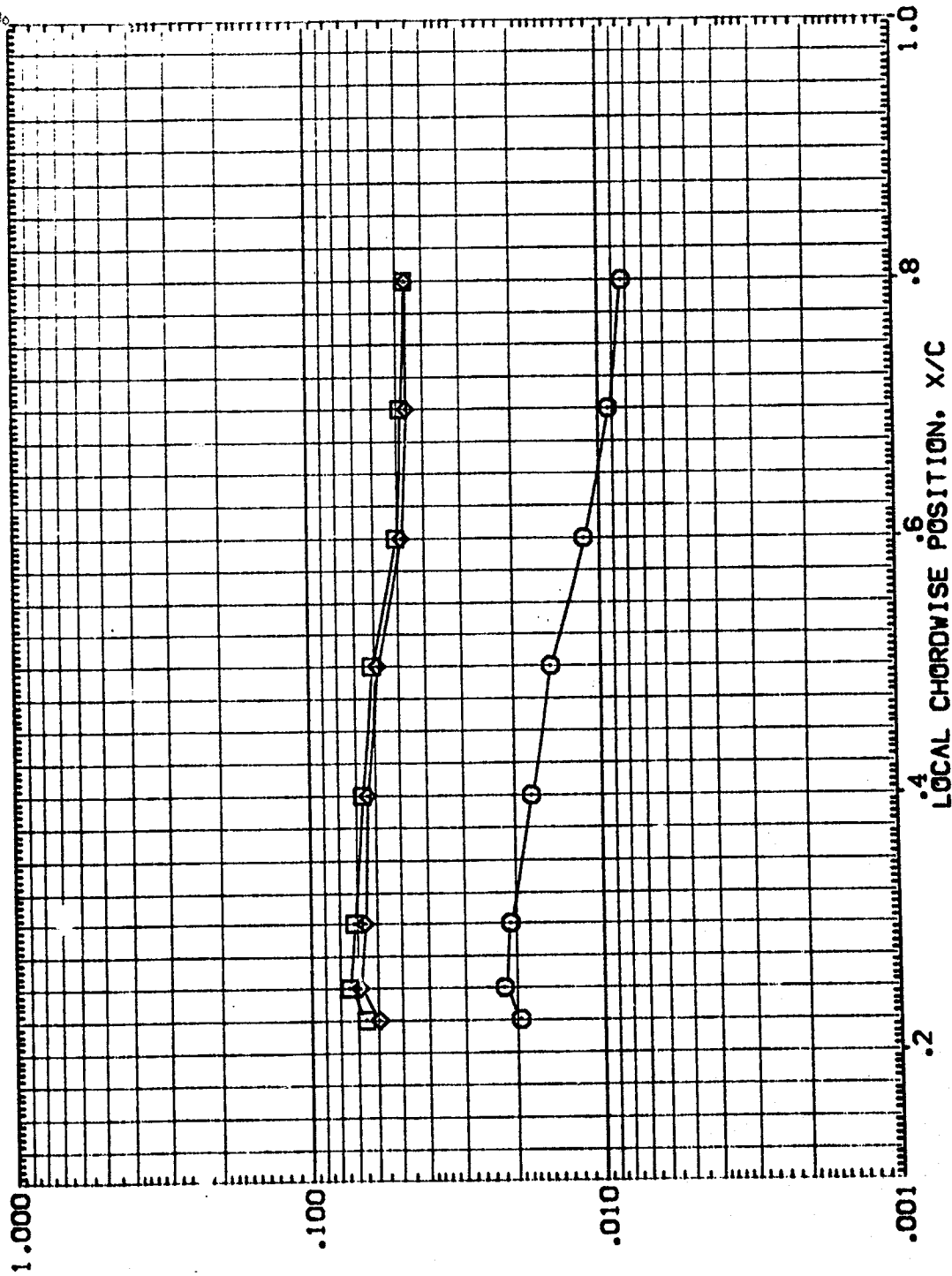
HEAT TRANSFER COEFFICIENT RATIO, H/H0

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 1.000 HAW/HT = .850 2Y/B = .800

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 1400001 0413 B10C3-6707F 403/5
 1400002 0413 B10C3-6707F 403/5
 1400003 0413 B10C3-6707F 403/5

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

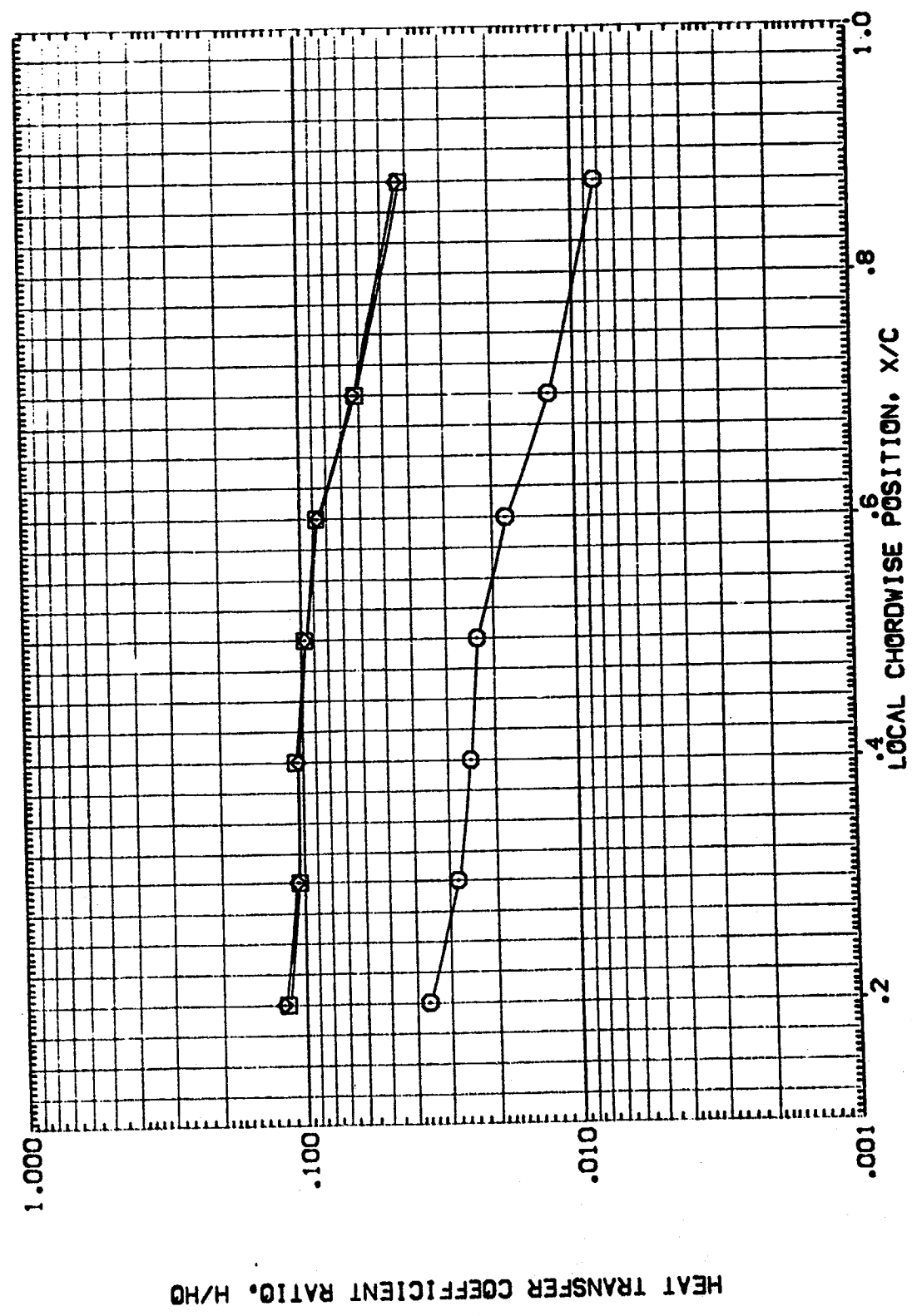
RN/L = 1.000 HAW/HT = 1.000 2Y/B = .400

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA ELEVON BETA RUDDER

{VP0001} D-13 B10CS167D7F4M3VS .000 .000 .000 .000

{VP0002} D-13 B10CS167D7F4M3VS .000 .000 .000 .000

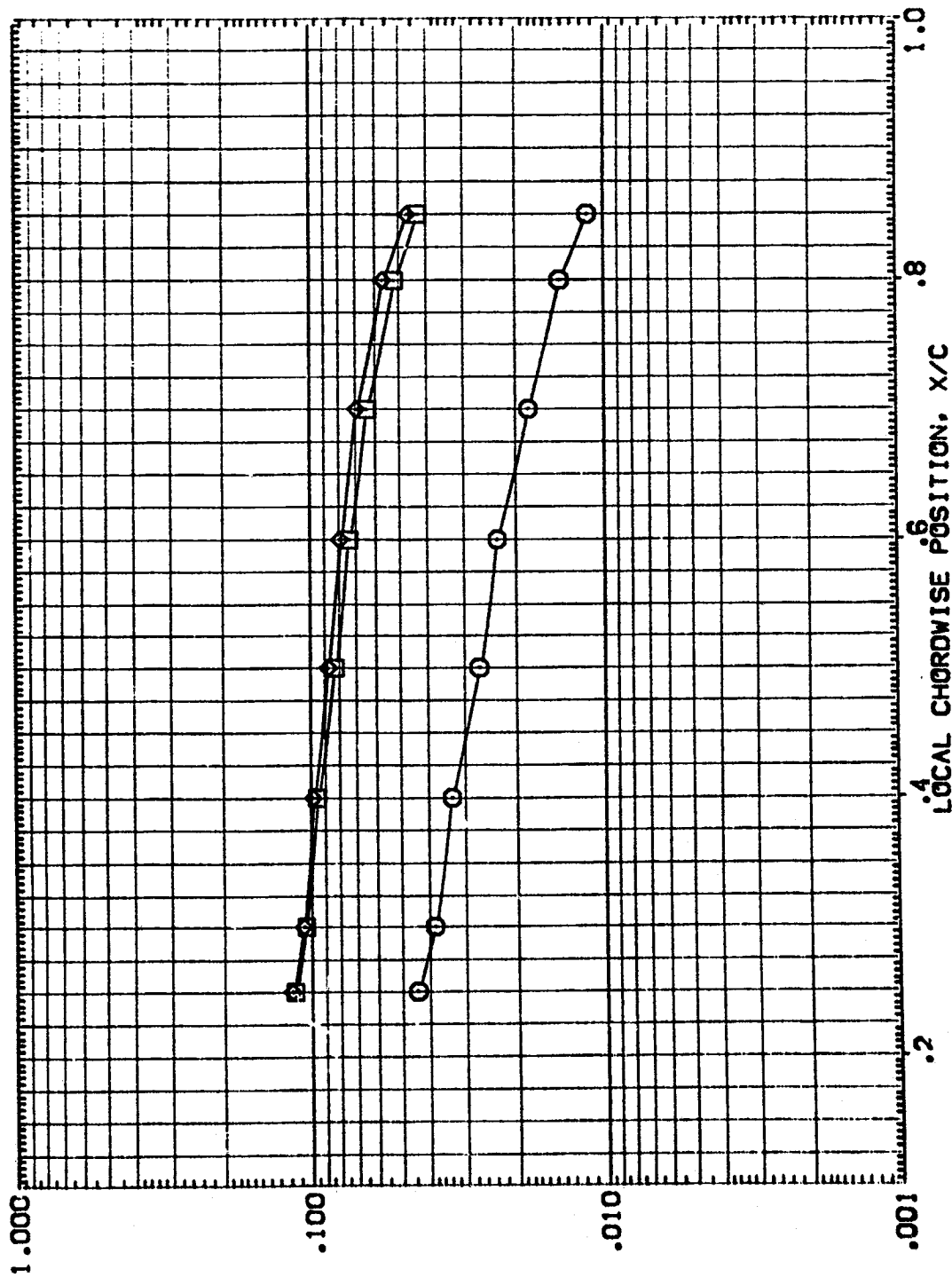
{VP0003} D-13 B10CS167D7F4M3VS .000 .000 .000 .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {VP0001} CH13 810CS6707F-43V5
 {VP0002} CH13 810CS6707F-43V5
 {VP0003} CH13 810CS6707F-43V5

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHORDWISE POSITION, X/C

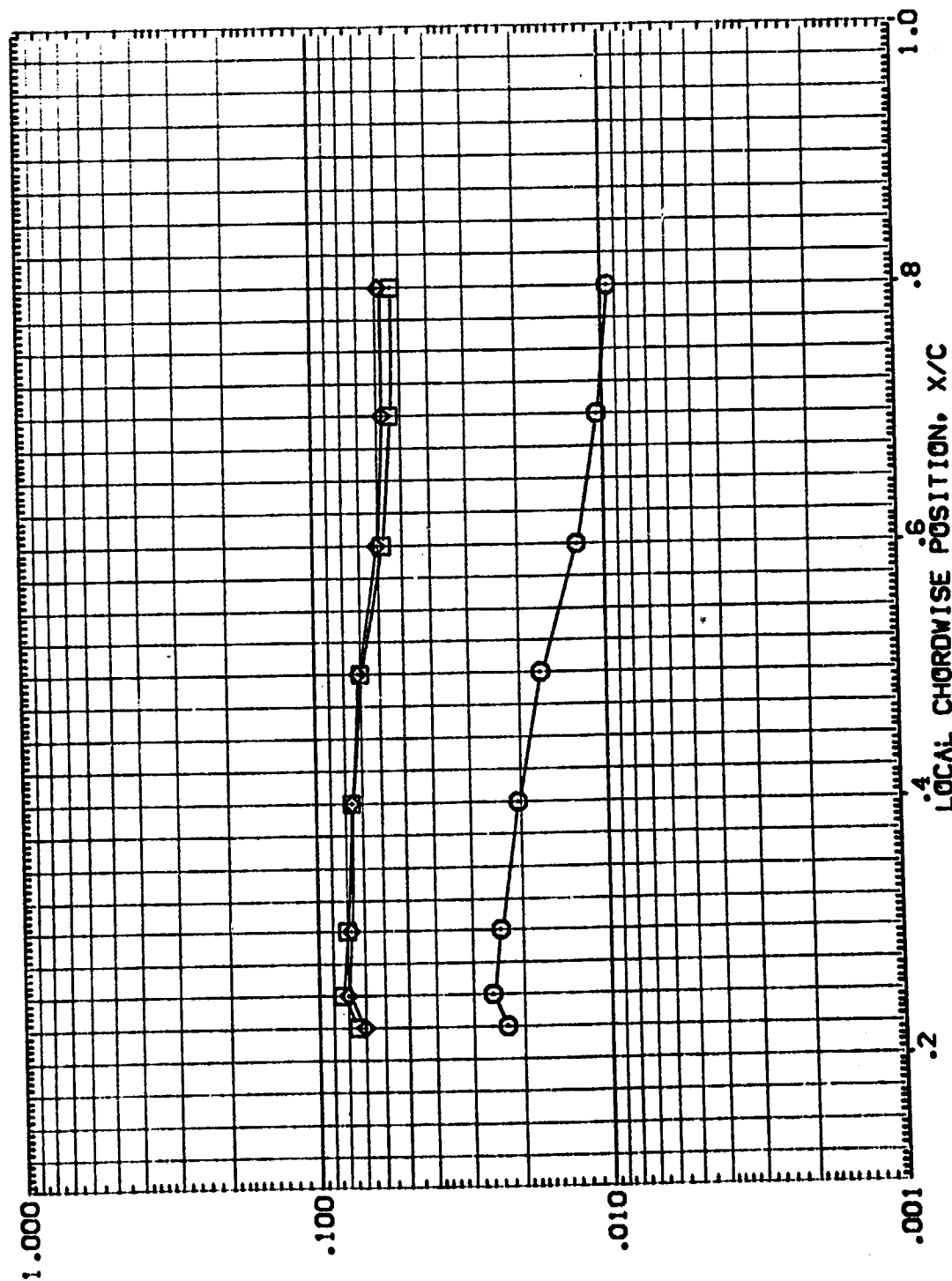
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 1.000 HAW/HT = 1.000 2Y/B = .800

PAGE 98

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (VP0001) DH13 B10CS46707F-413V5
 (VP0002) DH13 B10CS46707F-413V5
 (VP0003) DH13 B10CS46707F-413V5

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

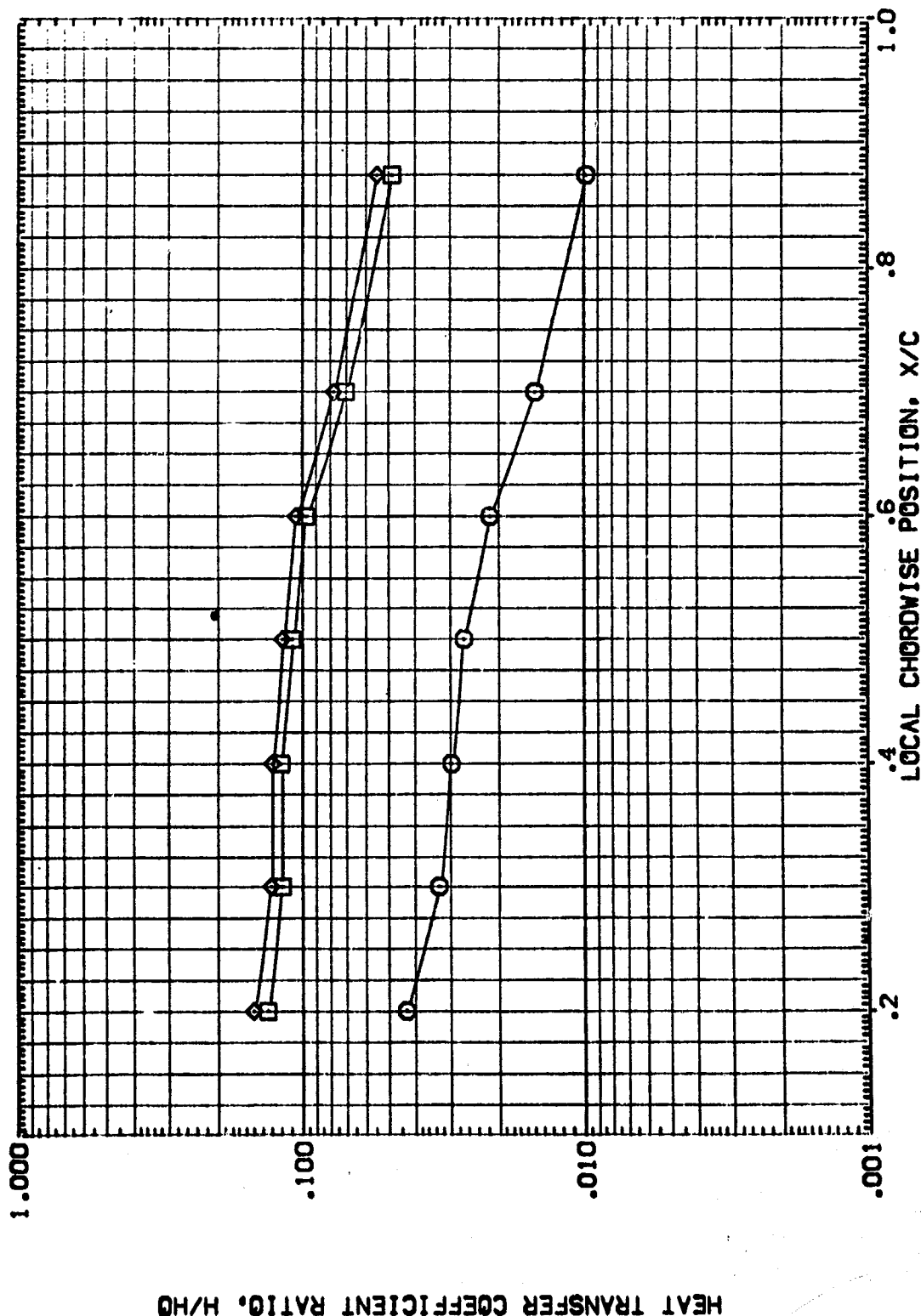


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 2.000 HAW/HT = .850 2Y/B = .400

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 { WP0001 } 0413 8102546707F-03045
 { WP0002 } 0413 8102546707F-03045
 { WP0003 } 0413 8102546707F-03045

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 20.000 .000 .000 .000
 30.000 .000 .000 .000

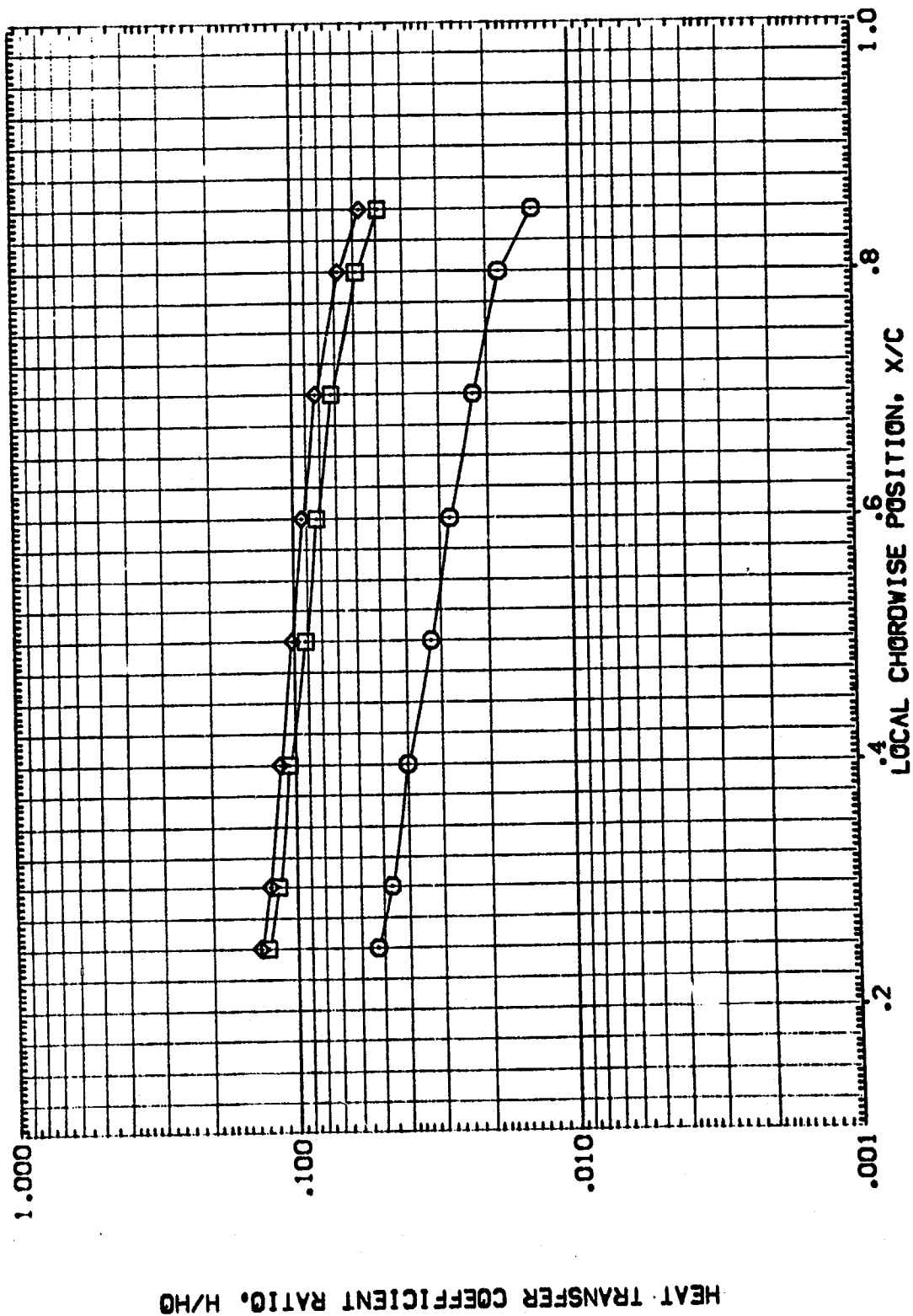


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 2.000 HAW/HT = .850 2Y/B = .600

DATA SET SYMBOL. CONFIGURATION DESCRIPTION
 {VP0001} 0-13 B10C5M8707F-4M3VS
 {VP0002} 0-13 B10C5M8707F-4M3VS
 {VP0003} 0-13 B10C5M8707F-4M3VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 30.000 .000 .000 .000

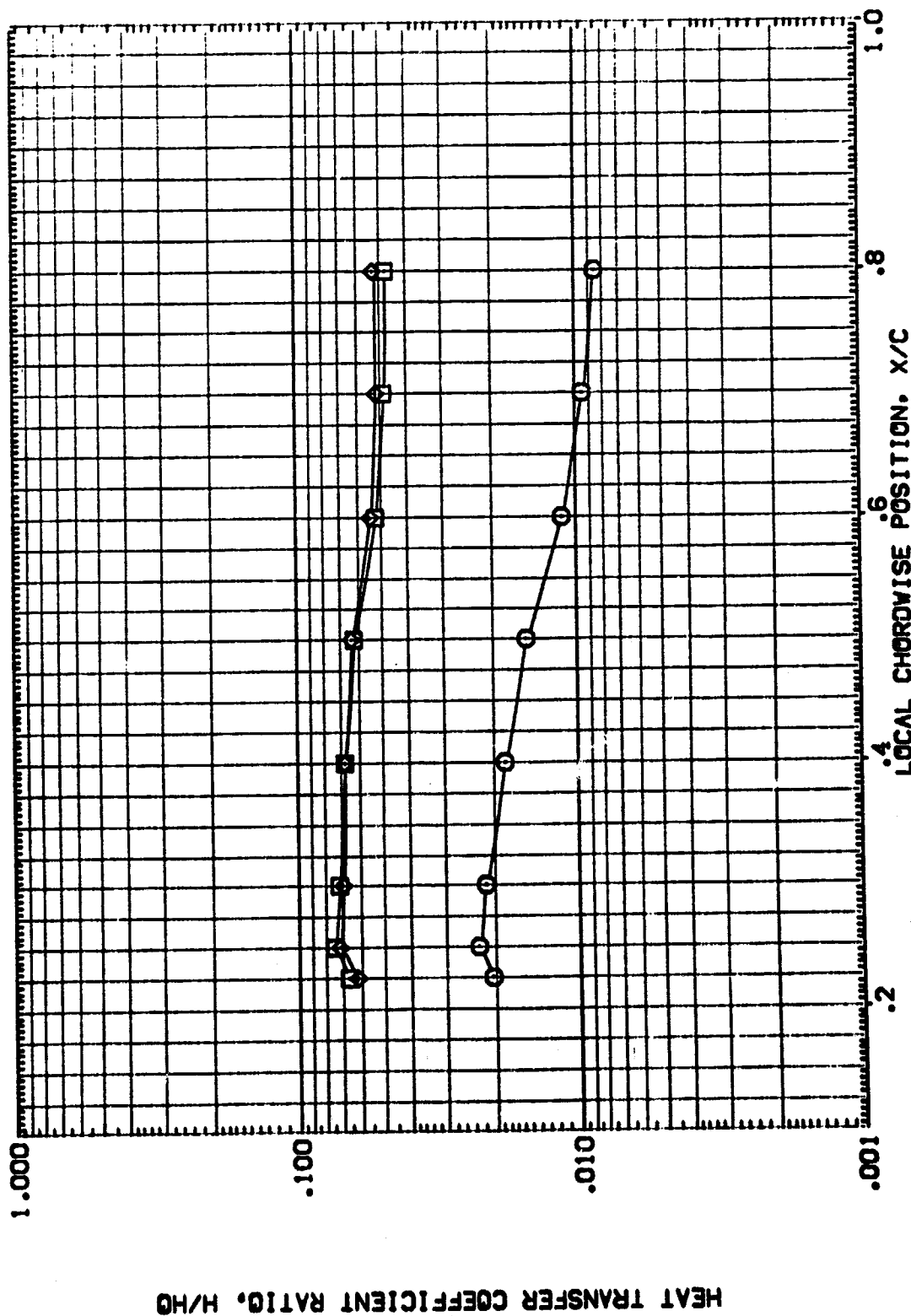


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 2.000 HAW/HT = .850 2Y/B = .800

DATA SET SYMBOL. CONFIGURATION DESCRIPTION
 {W0001} 0413 B10C56707F-4GV5
 {W0002} 0413 B10C56707F-4GV5
 {W0003} 0413 B10C56707F-4GV5

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

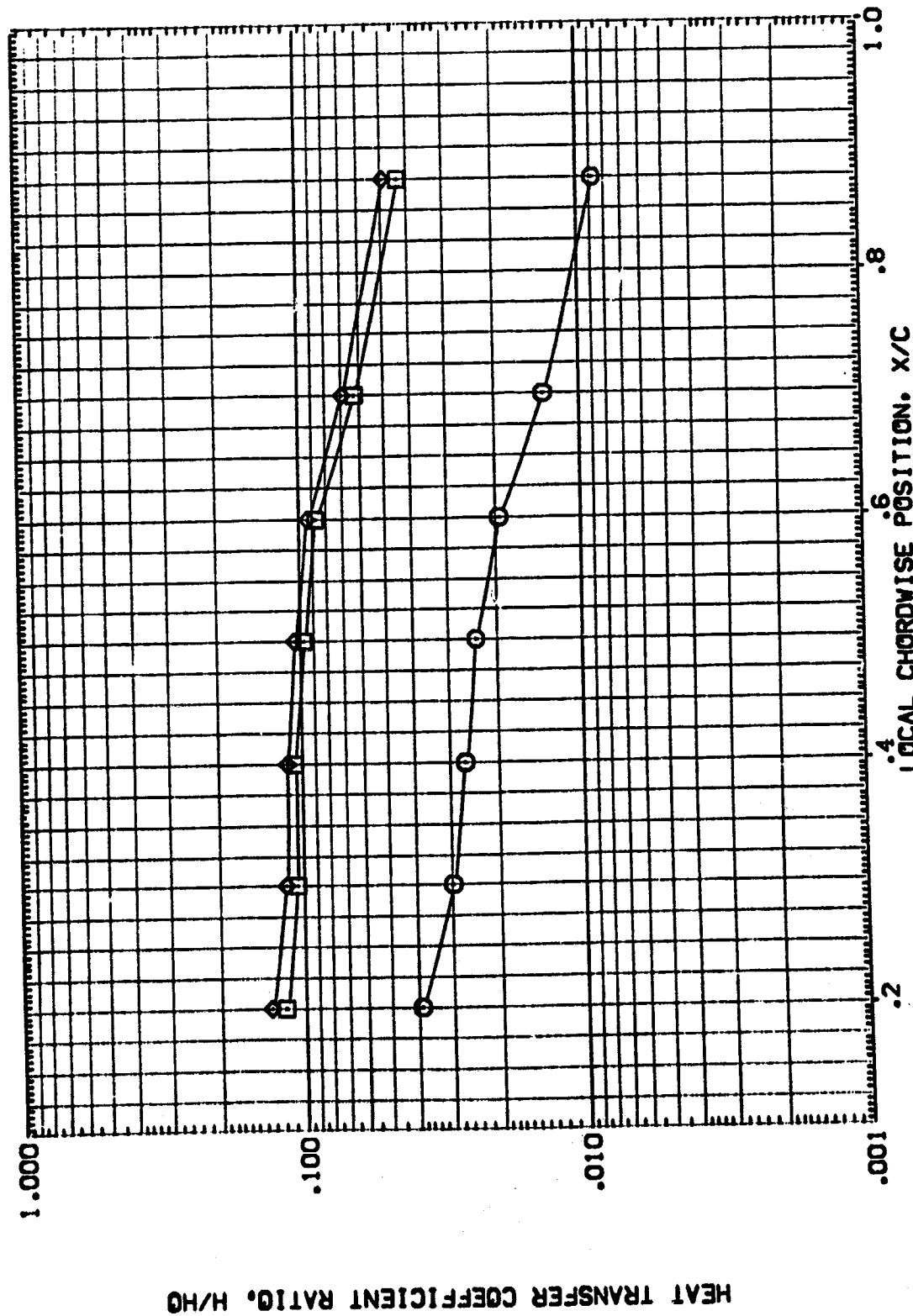


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 2.000 HAW/HT = 1.000 2Y/B = .400

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 1400001 } 0413 810CS4870TF-403VS
 1400002 } 0413 810CS4870TF-403VS
 1400003 } 0413 810CS4870TF-403VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 20.000 .000 .000 .000
 35.000 .000 .000 .000

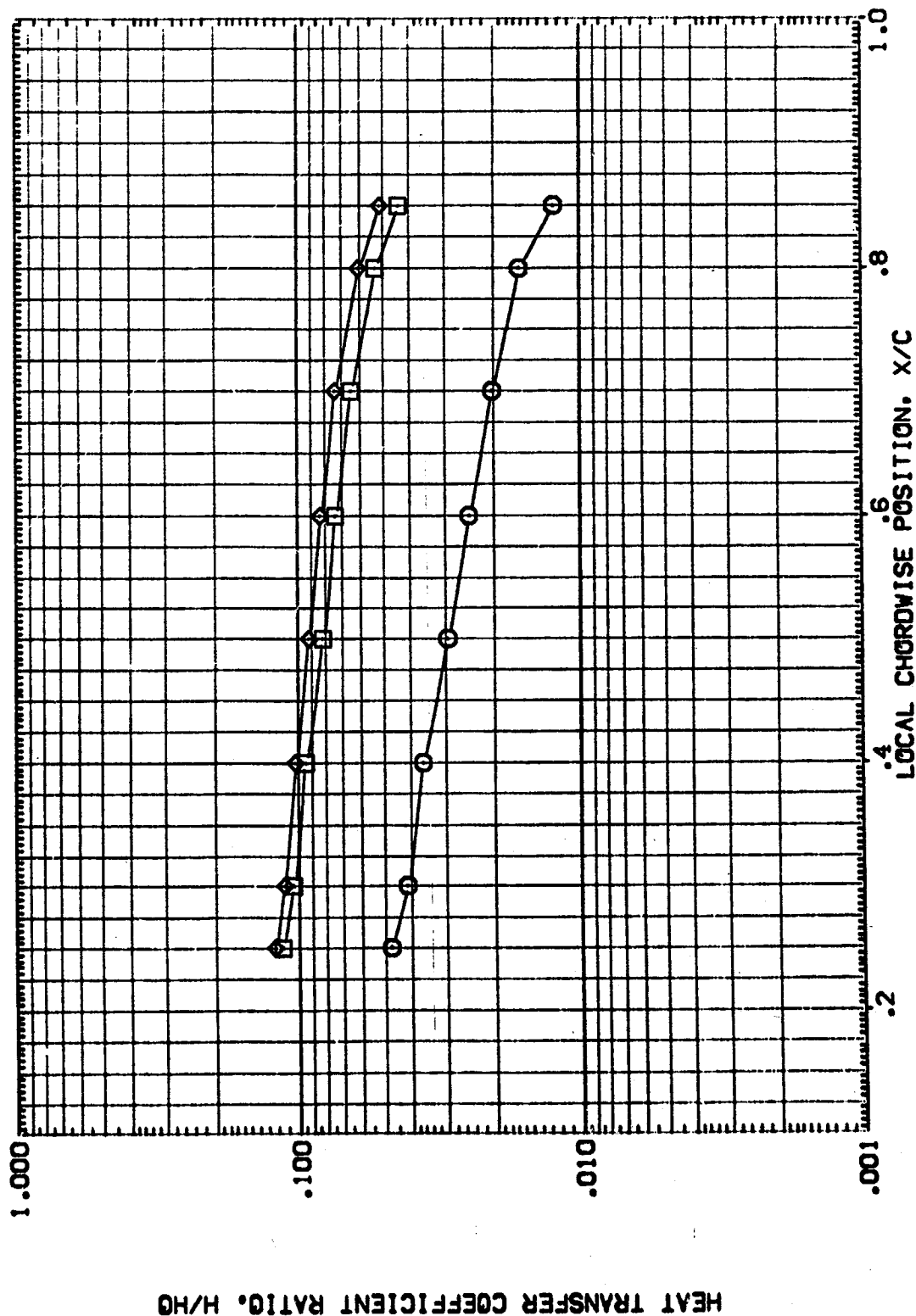


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 2.000 HAW/HT = 1.000 2Y/B = .600

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {VP0001} OH13 B10CS46707F-43VS
 {VP0002} OH13 B10CS46707F-43VS
 {VP0003} OH13 B10CS46707F-43VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

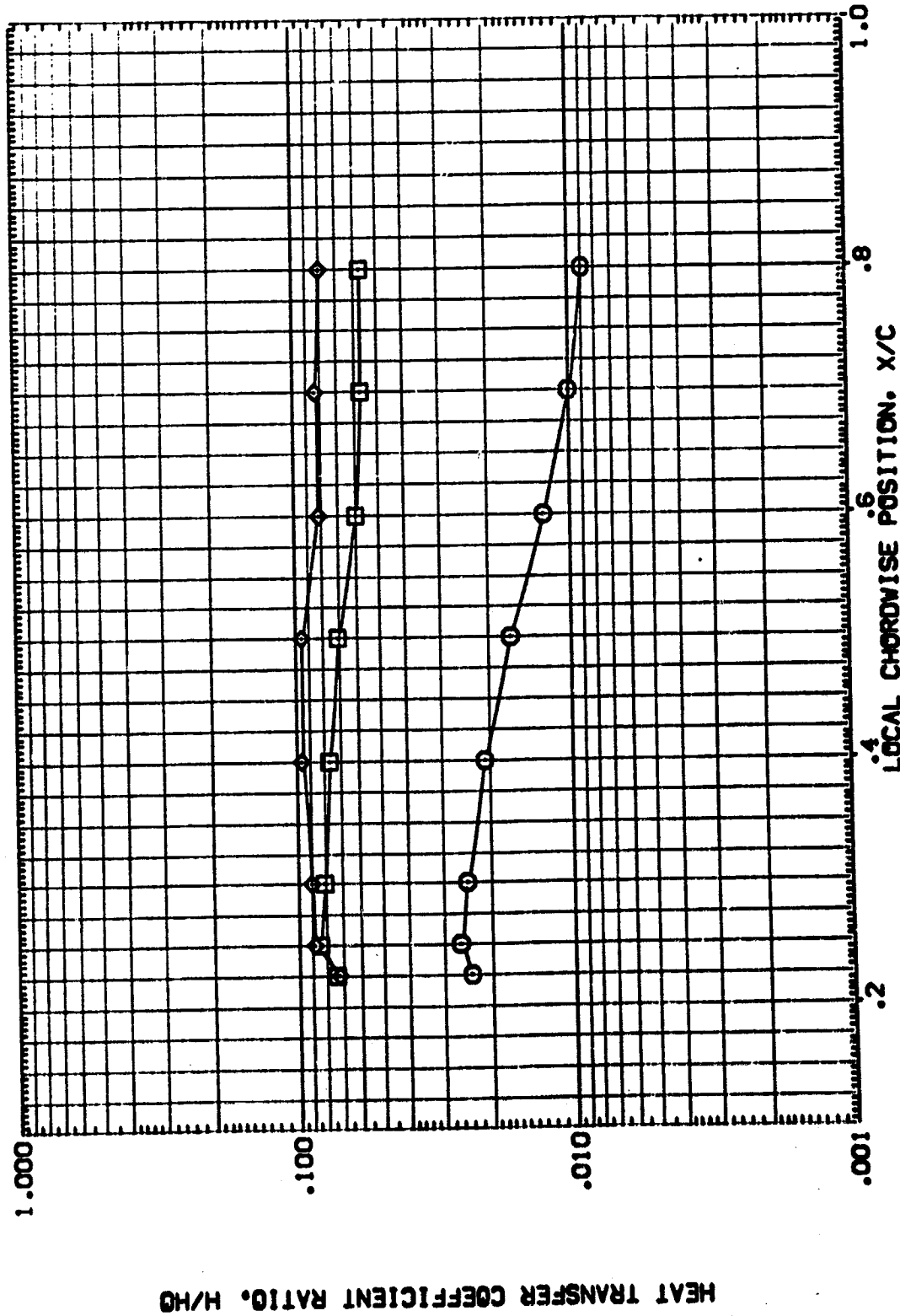
LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 2.000 HAW/HT = 1.000 2Y/B = .800

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 [VP0001] 0-13 B10CS-8707F-43VS
 [VP0002] 0-13 B10CS-8707F-43VS
 [VP0003] 0-13 B10CS-8707F-43VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

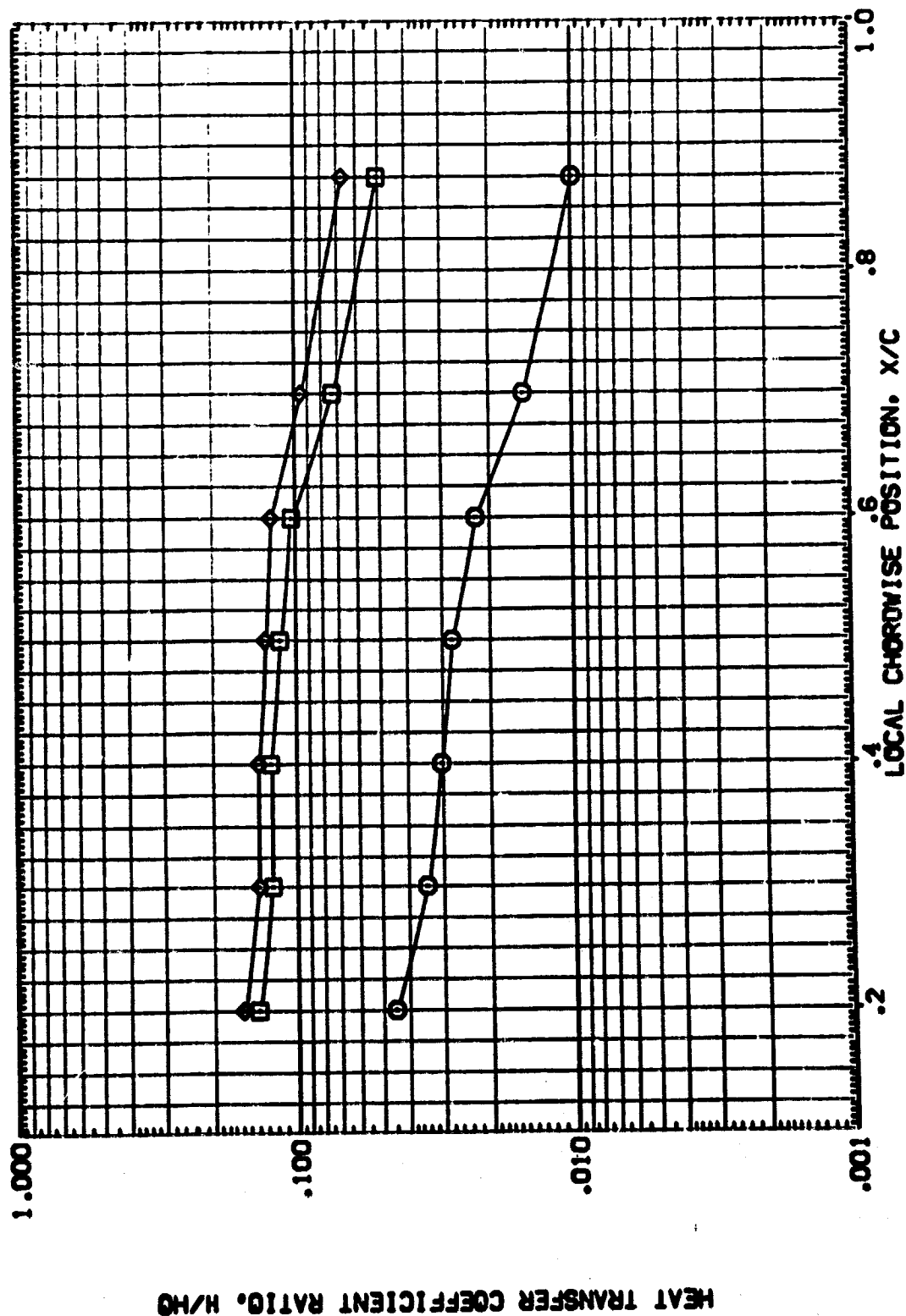


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 3.000 HAW/HT = .850 2Y/B = .400

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 100001 0413 8103567077 9045
 100002 0413 8103567077 9045
 100003 0413 8103567077 9045

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

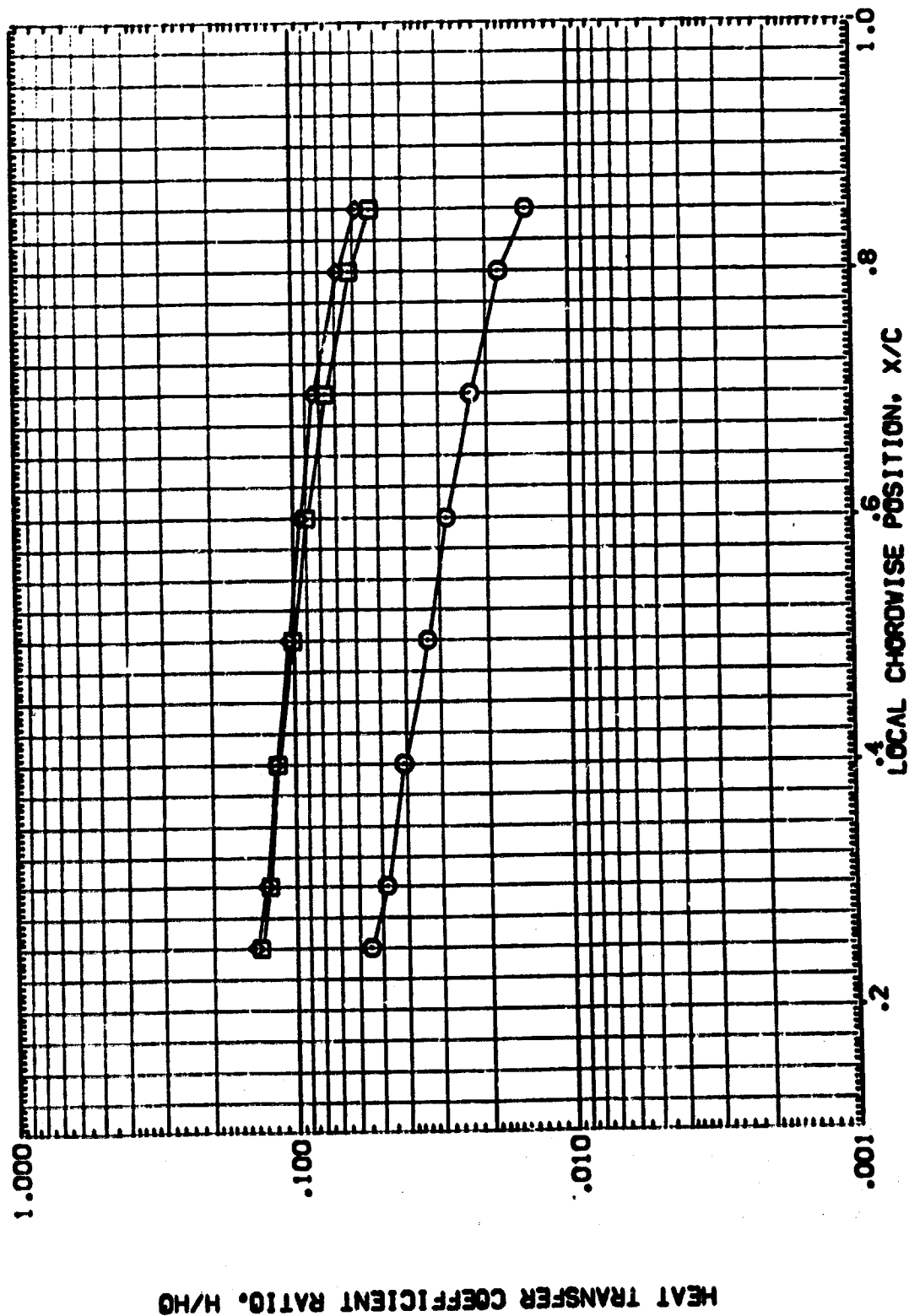


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 3.000 HAW/HT = .850 2Y/B = .600

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {W0001}  0413 B102346707F40345
 {W0002} 0413 B102346707F40345
 {W0003} 0413 B102346707F40345

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

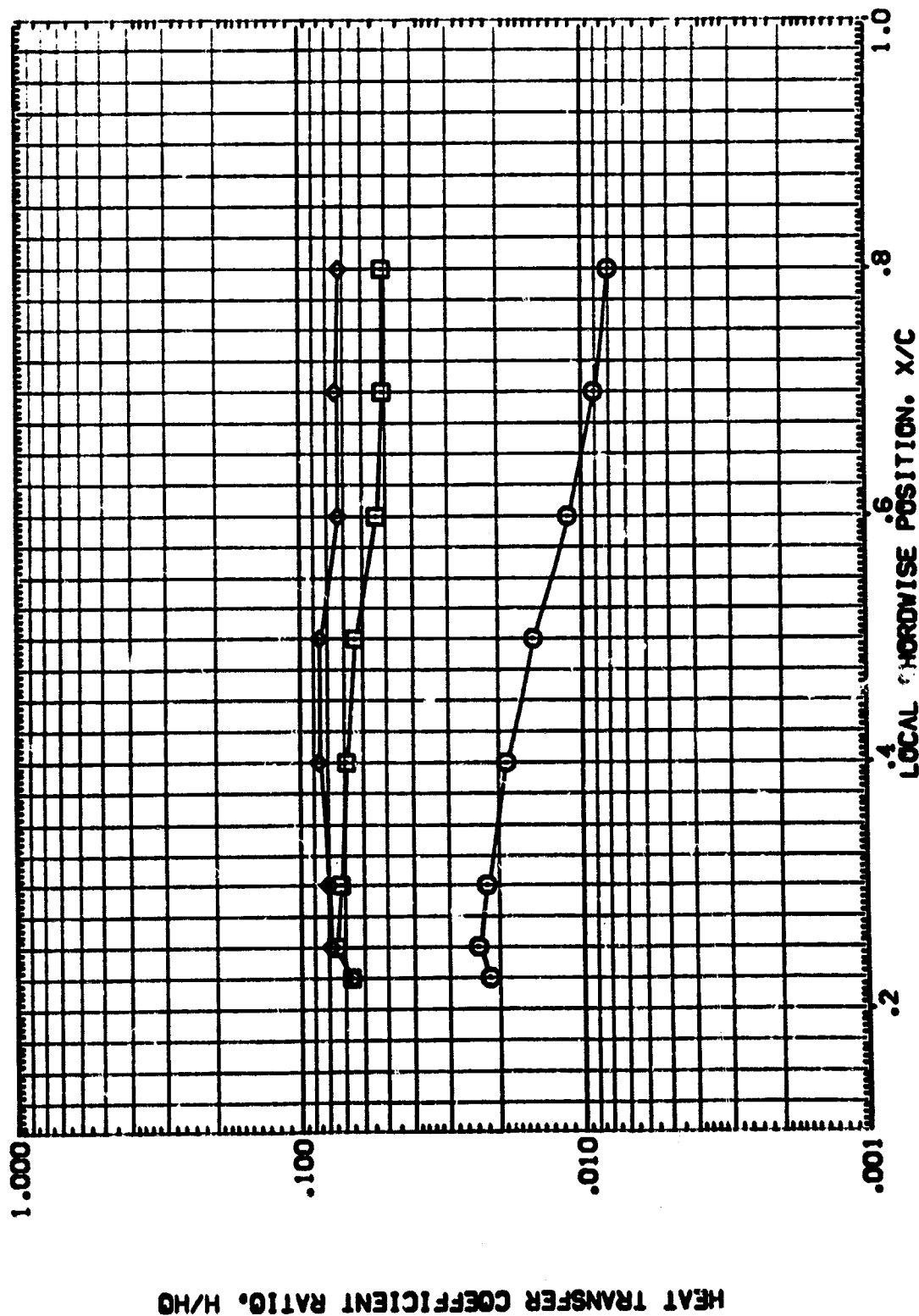


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 3.000 HAW/HT = .850 2Y/B = .800

DATA SET 9982. CONFIGURATION DESCRIPTION
 0413 8102348707-4045
 0413 8102348707-4045
 0413 8102348707-4045

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000

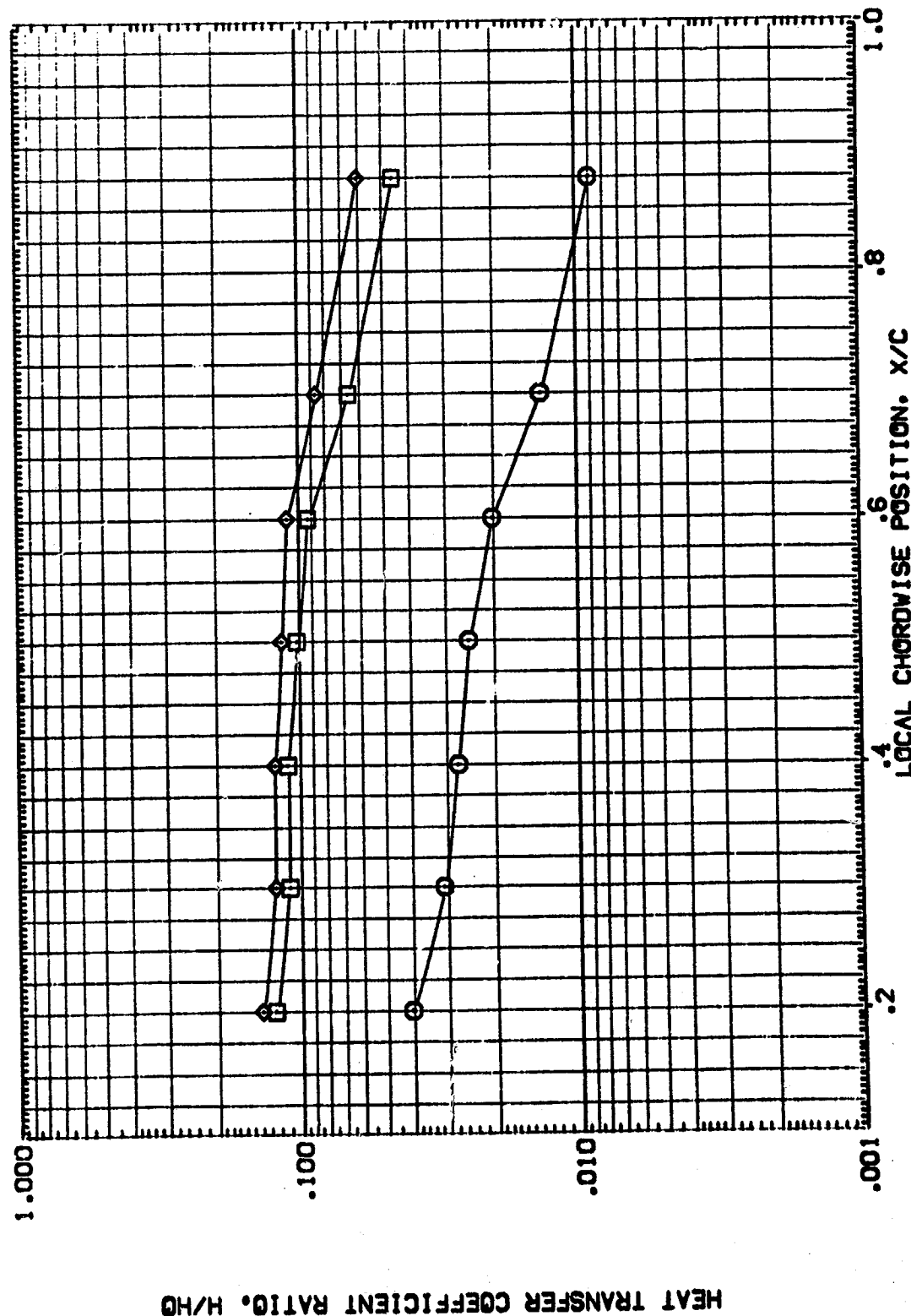


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 3.000 HAW/HT = 1.000 2Y/B = .400

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 [VP0001] 0-13 B10CS68707F4MGVS
 [VP0002] 0-13 B10CS68707F4MGVS
 [VP0003] 0-13 B10CS68707F4MGVS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

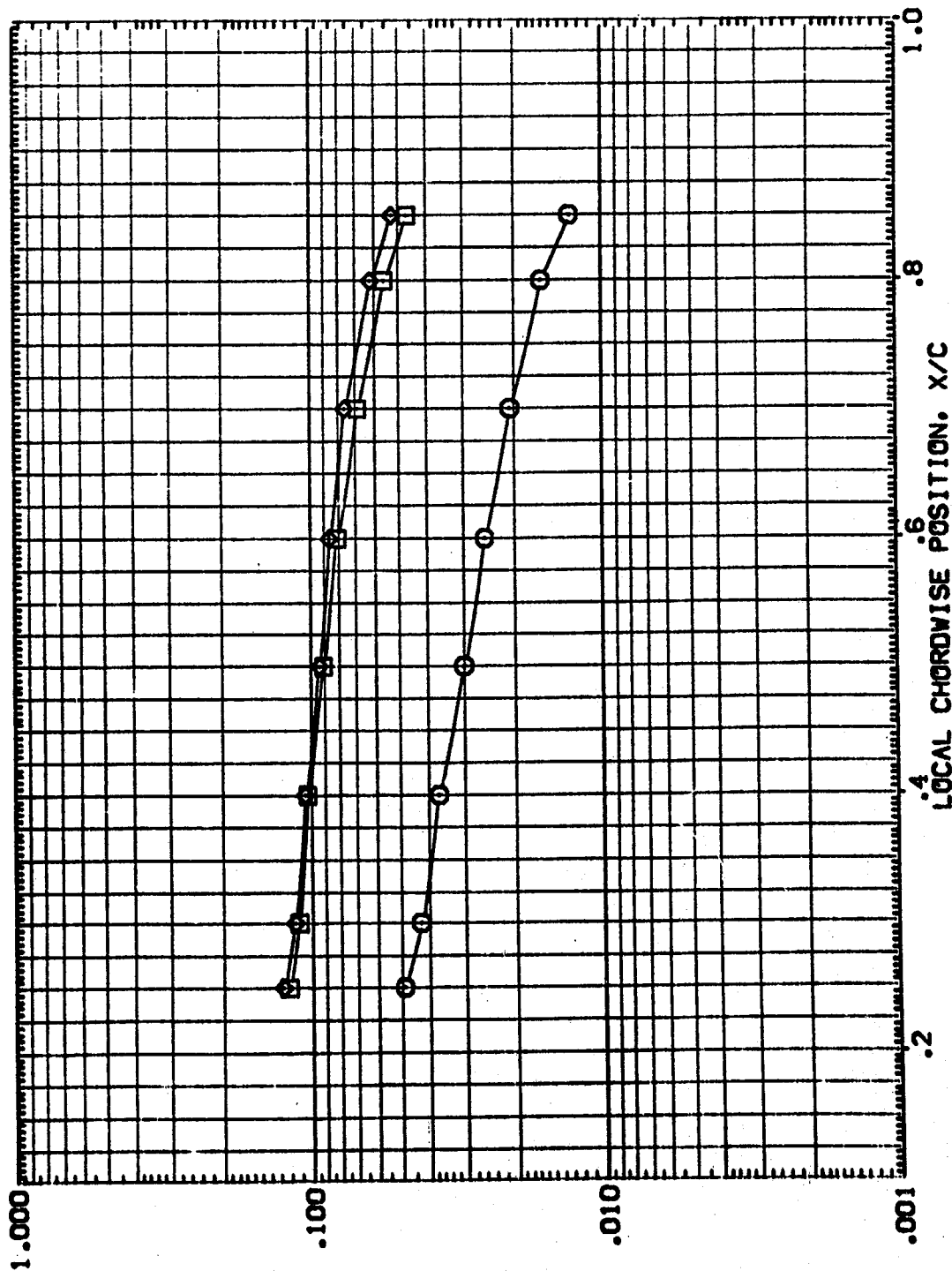


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 3.000 HAW/HT = 1.000 2Y/B = .600

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {WP0001} 0413 8100546707F-030V5
 {WP0002} 0413 8100546707F-030V5
 {WP0003} 0413 8100546707F-030V5

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000



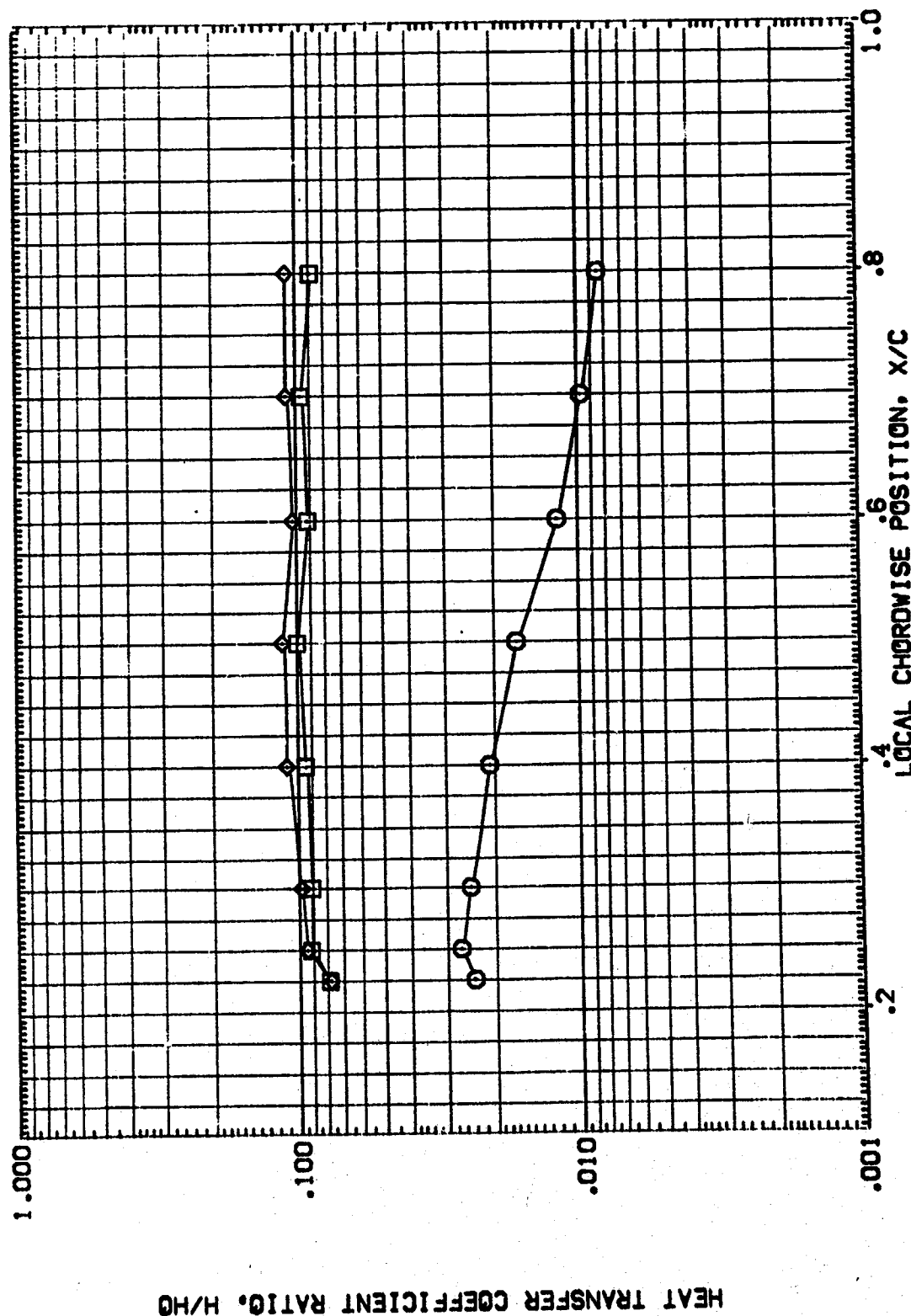
HEAT TRANSFER COEFFICIENT RATIO, H/H0

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 3.000 HAW/HT = 1.000 2Y/B = .800 PAGE 110

DATA SET SYMBOL. CONFIGURATION DESCRIPTION
 [VP0001] 0413 B10CSM8707F-4V3V5
 [VP0002] 0413 B10CSM8707F-4V3V5
 [VP0003] 0413 B10CSM8707F-4V3V5

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

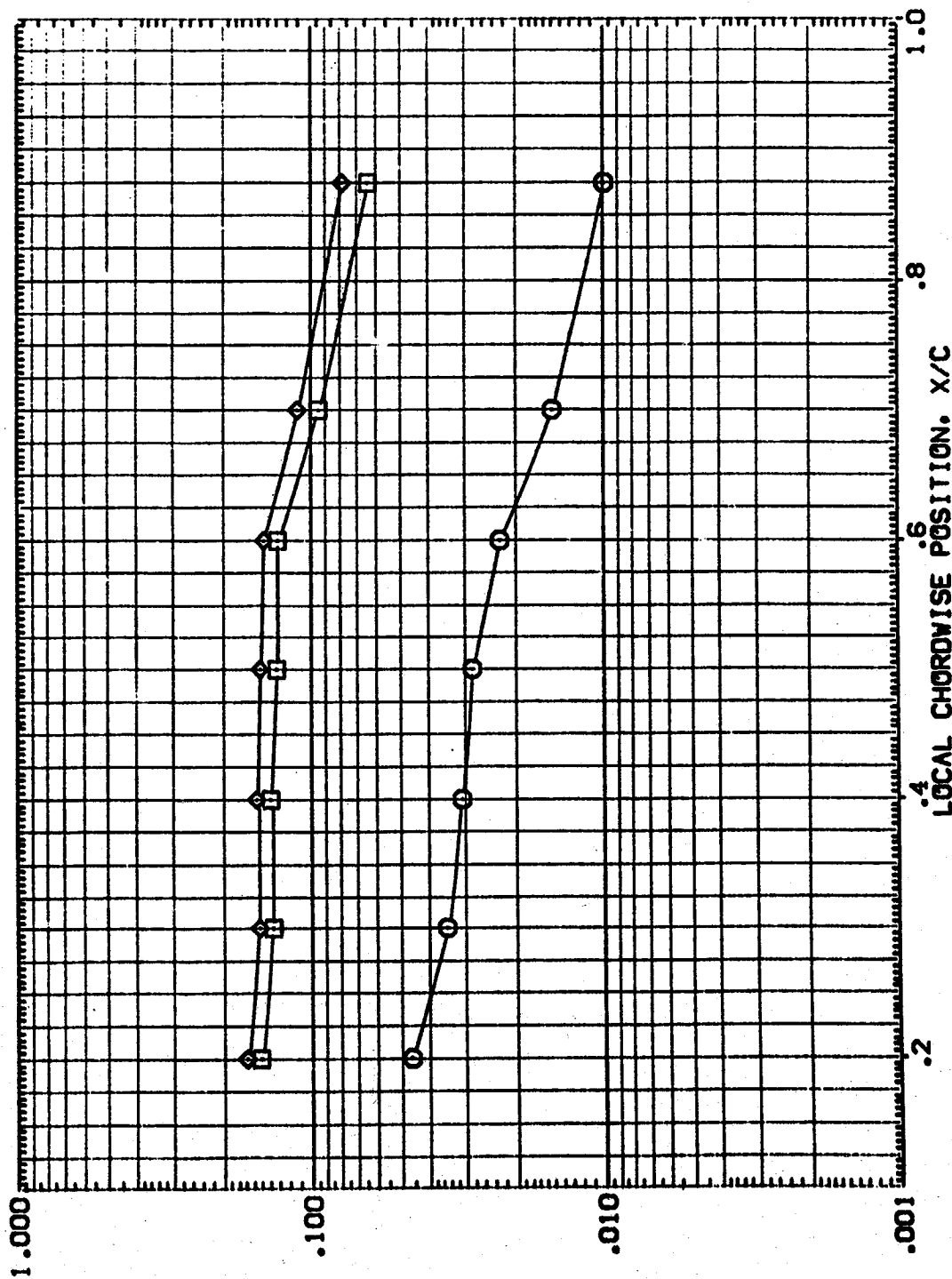


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 4.000 HAW/HT = .850 2Y/B = .400

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (VP0001) 0413 B10C5W6707F-43VS
 (VP0002) 0413 B10C5W6707F-43VS
 (VP0003) 0413 B10C5W6707F-43VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

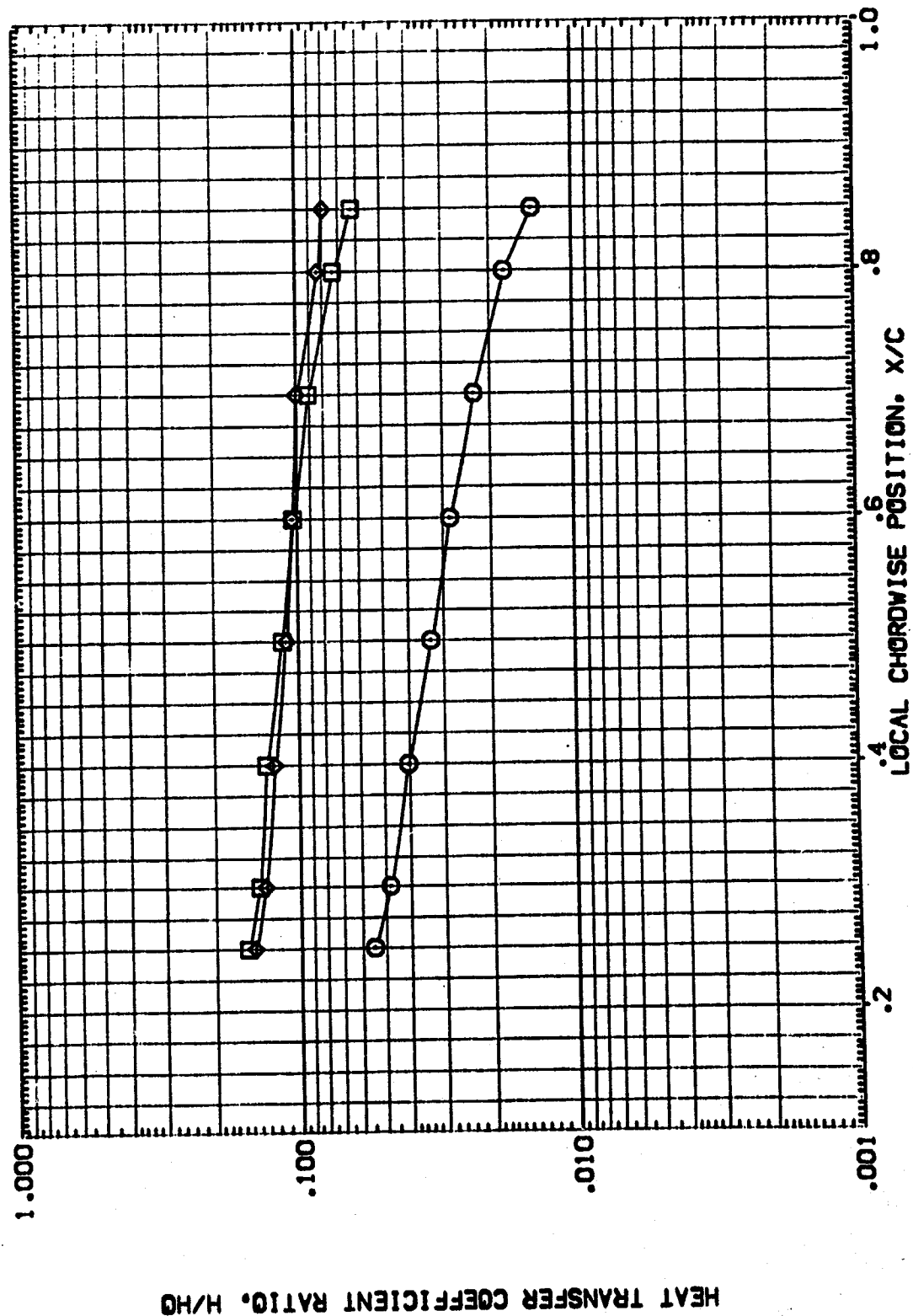
LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 4.000 HAW/HT = .850 2Y/B = .600

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 [WP0001] 0-13 B10CSM8707F-4GV5
 [WP0002] 0-13 B10CSM8707F-4GV5
 [WP0003] 0-13 B10CSM8707F-4GV5

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

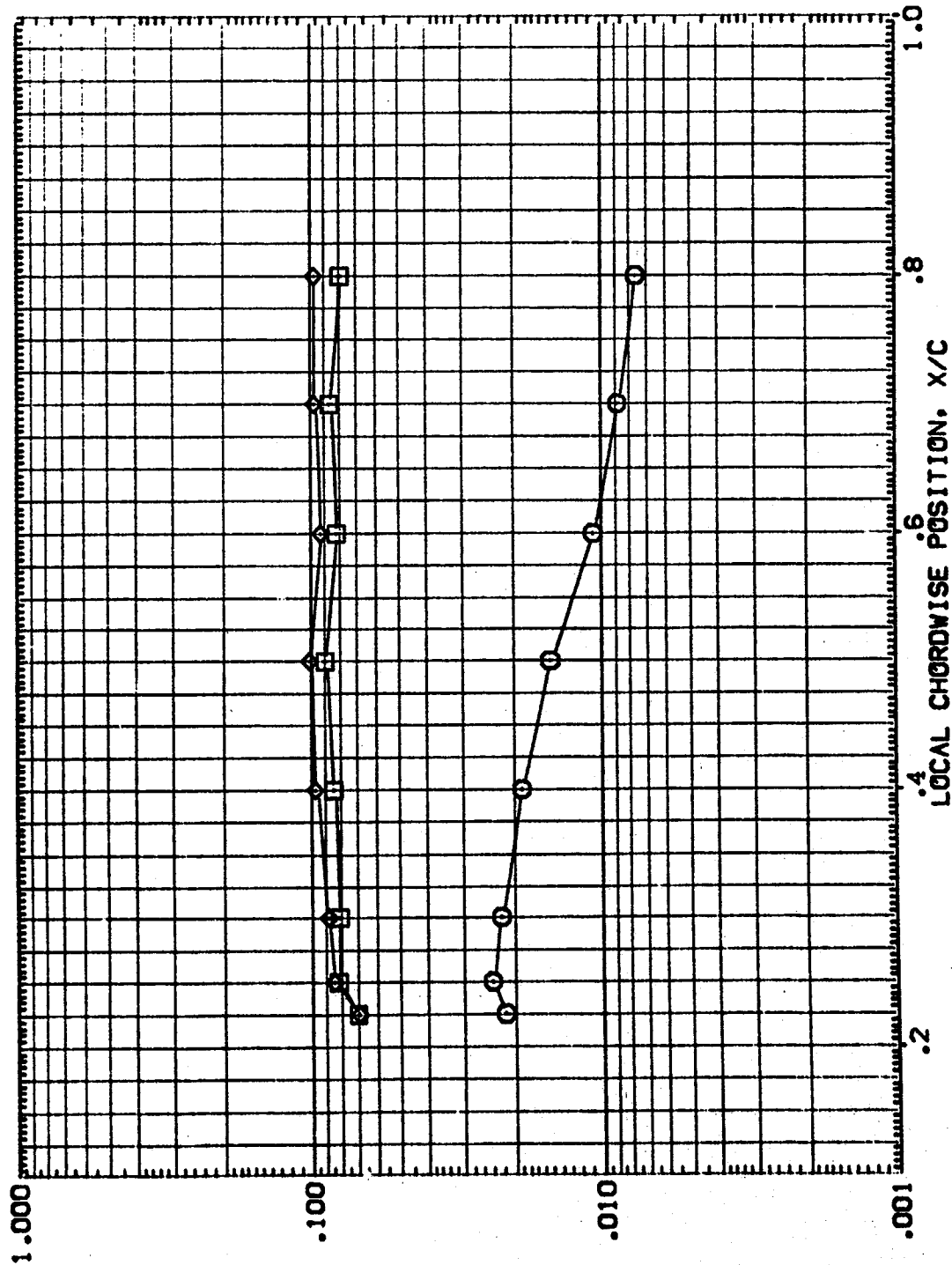


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 4.000 HAW/HT = .850 2Y/B = .800 PAGE 113

DATA SET SYMBOL. CONFIGURATION DESCRIPTION
 { W0001 } 0413 810CS46707F-43VS
 { W0002 } 0413 810CS46707F-43VS
 { W0003 } 0413 810CS46707F-43VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000



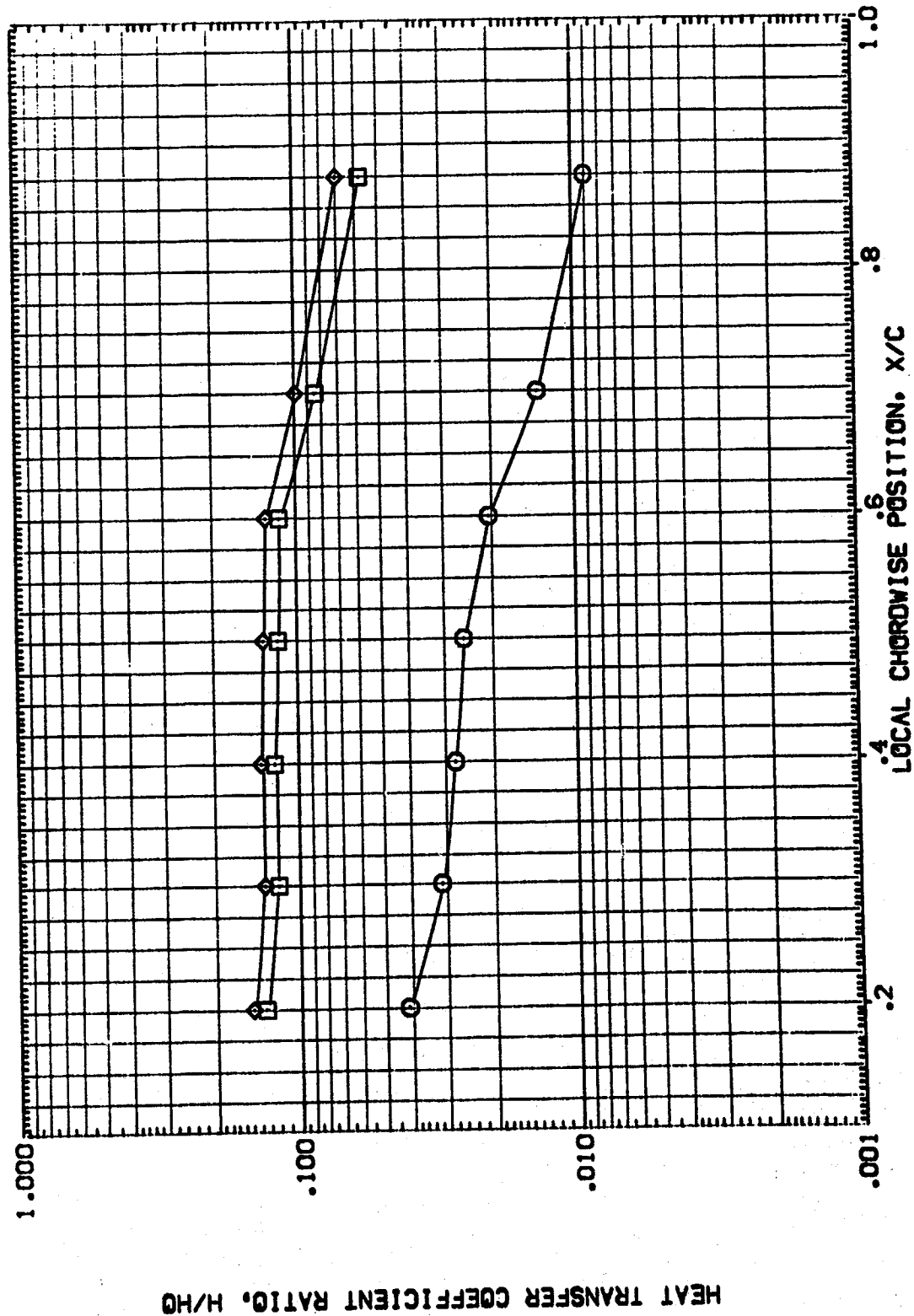
HEAT TRANSFER COEFFICIENT RATIO, H/H0

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 4.000 HAW/HT = 1.000 2Y/B = .400

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {VP0001} 0-113 B10CSN8707F-4-3VS
 {VP0002} 0-113 B10CSN8707F-4-3VS
 {VP0003} 0-113 B10CSN8707F-4-3VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

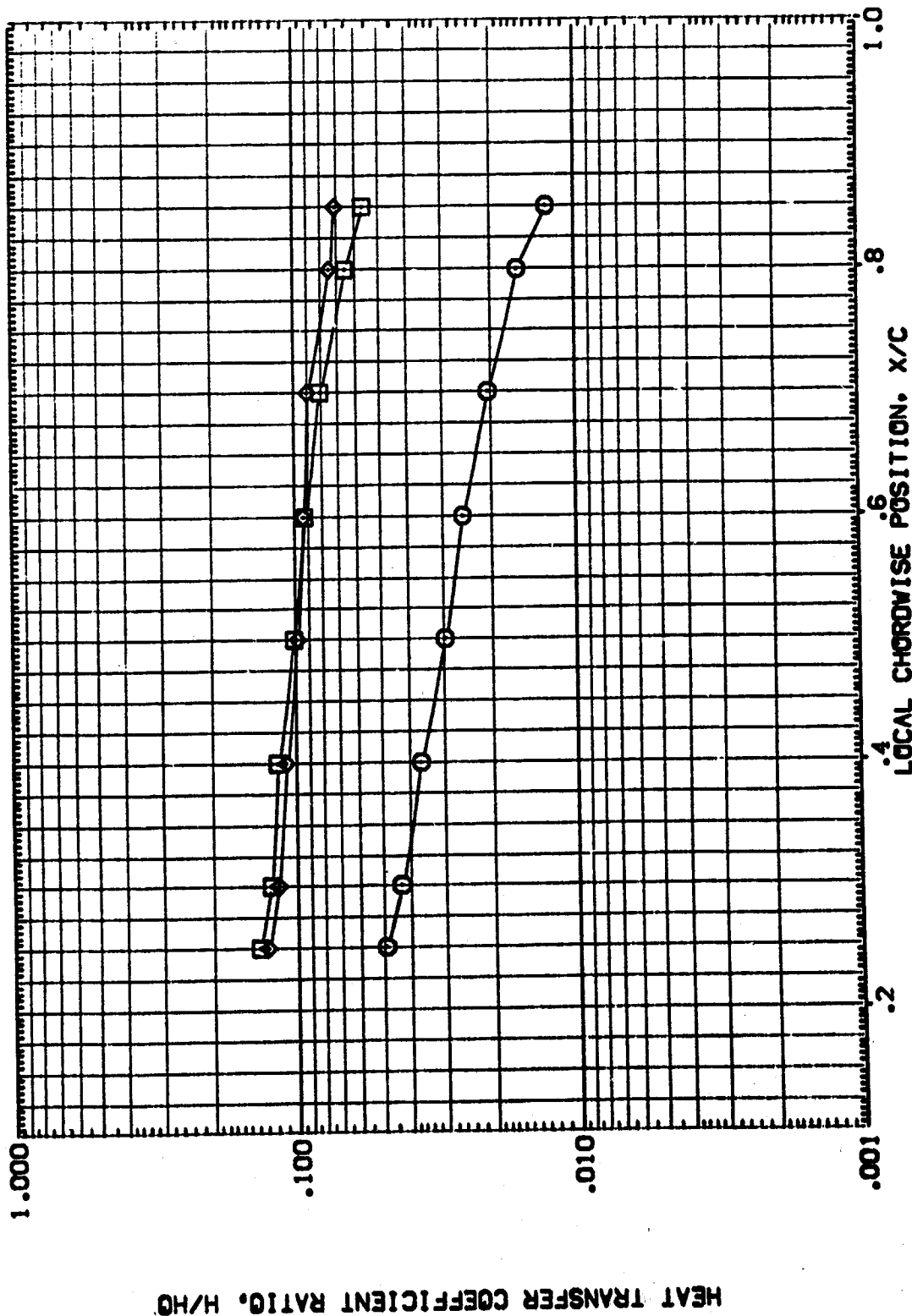


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 4.000 HAW/HT = 1.000 2Y/B = .600

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 [WP0001] 0413 B10C3-6707F-4GVS
 [WP0002] 0413 B10C3-6707F-4GVS
 [WP0003] 0413 B10C3-6707F-4GVS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

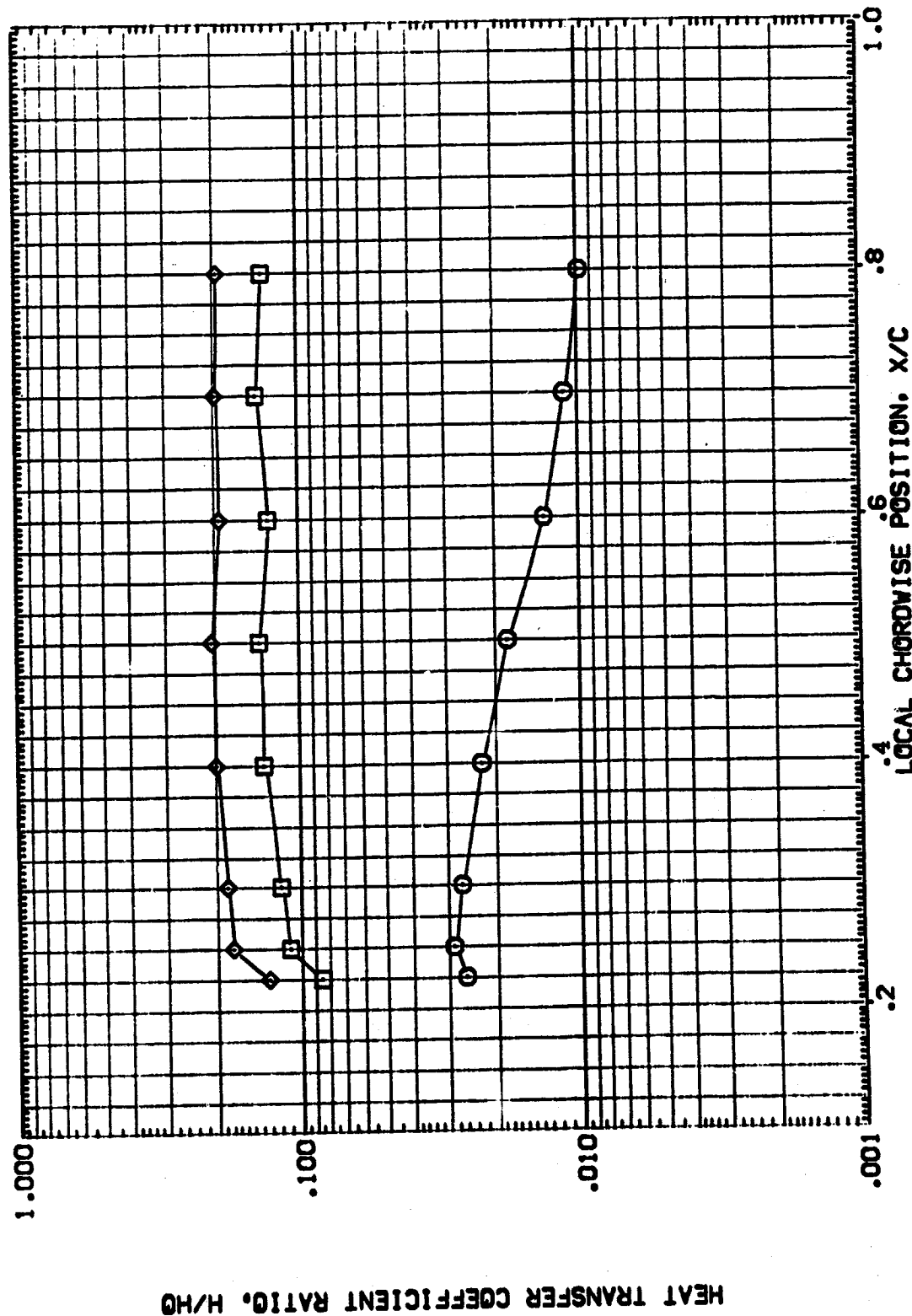


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 4.000 HAW/HT = 1.000 2Y/B = .800

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 { W0001 } 0-13 B10C5M8707F-43N5
 { W0002 } 0-13 B10C5M8707F-43N5
 { W0003 } 0-13 B10C5M8707F-43N5

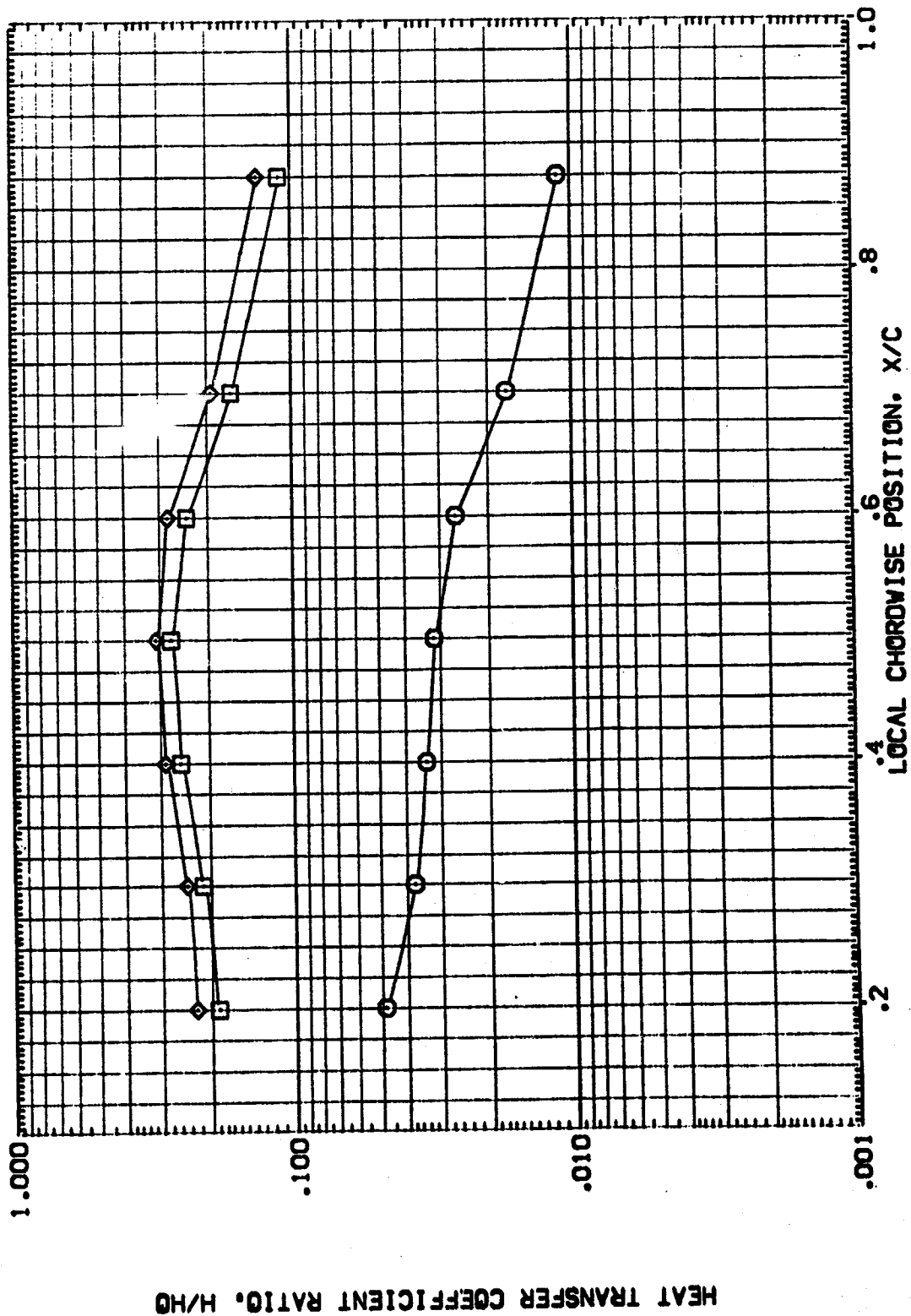
ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 20.000 .000 .000 .000
 35.000 .000 .000 .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (VP0001) 0-13 810356707F-4GVS
 (VP0002) 0-13 810356707F-4GVS
 (VP0003) 0-13 810356707F-4GVS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

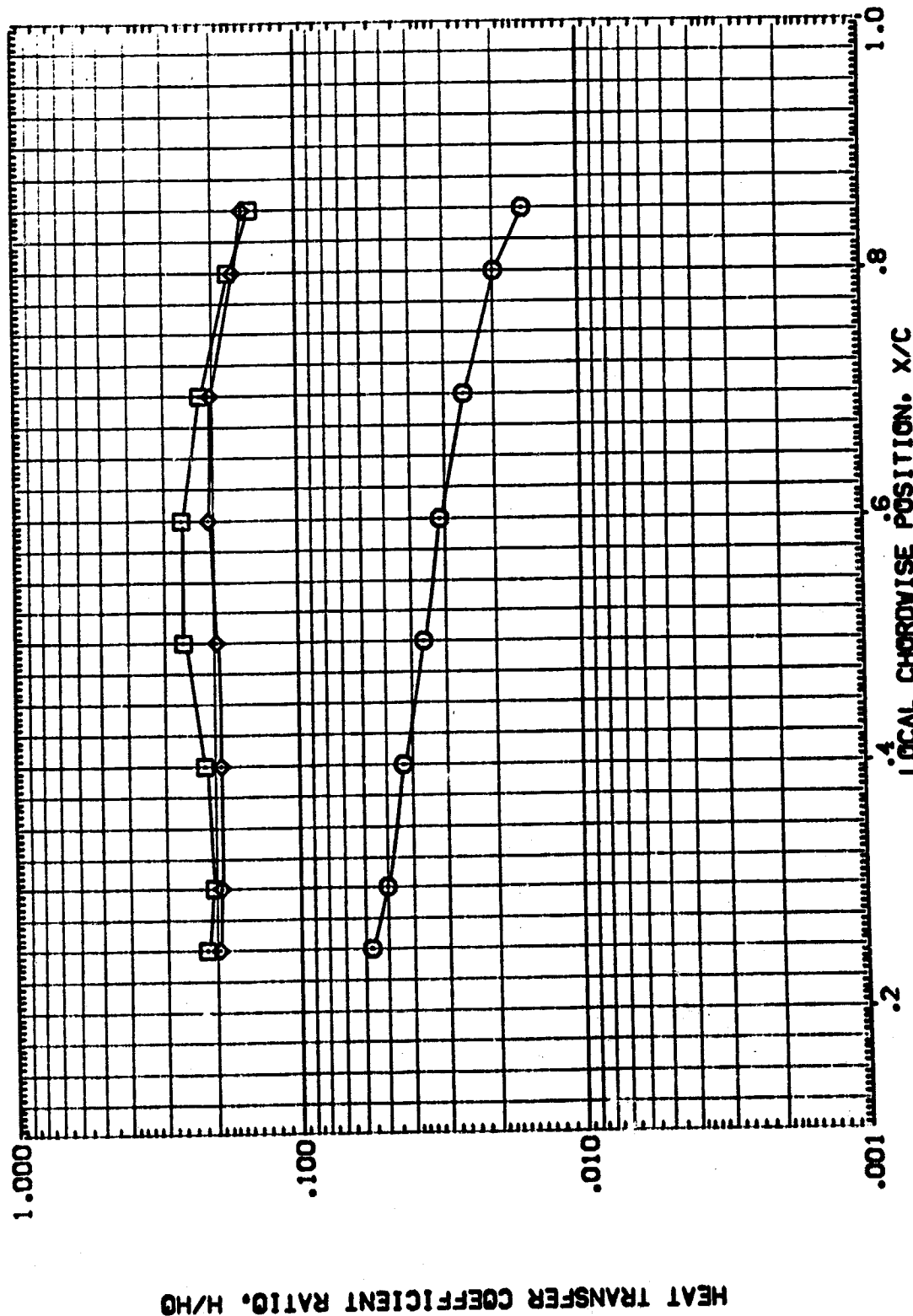


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 6.000 HAW/HT = .850 2Y/B = .600

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (W0001) 0413 B10C346707F4GVS
 (W0002) 0413 B10C346707F4GVS
 (W0003) 0413 B10C346707F4GVS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

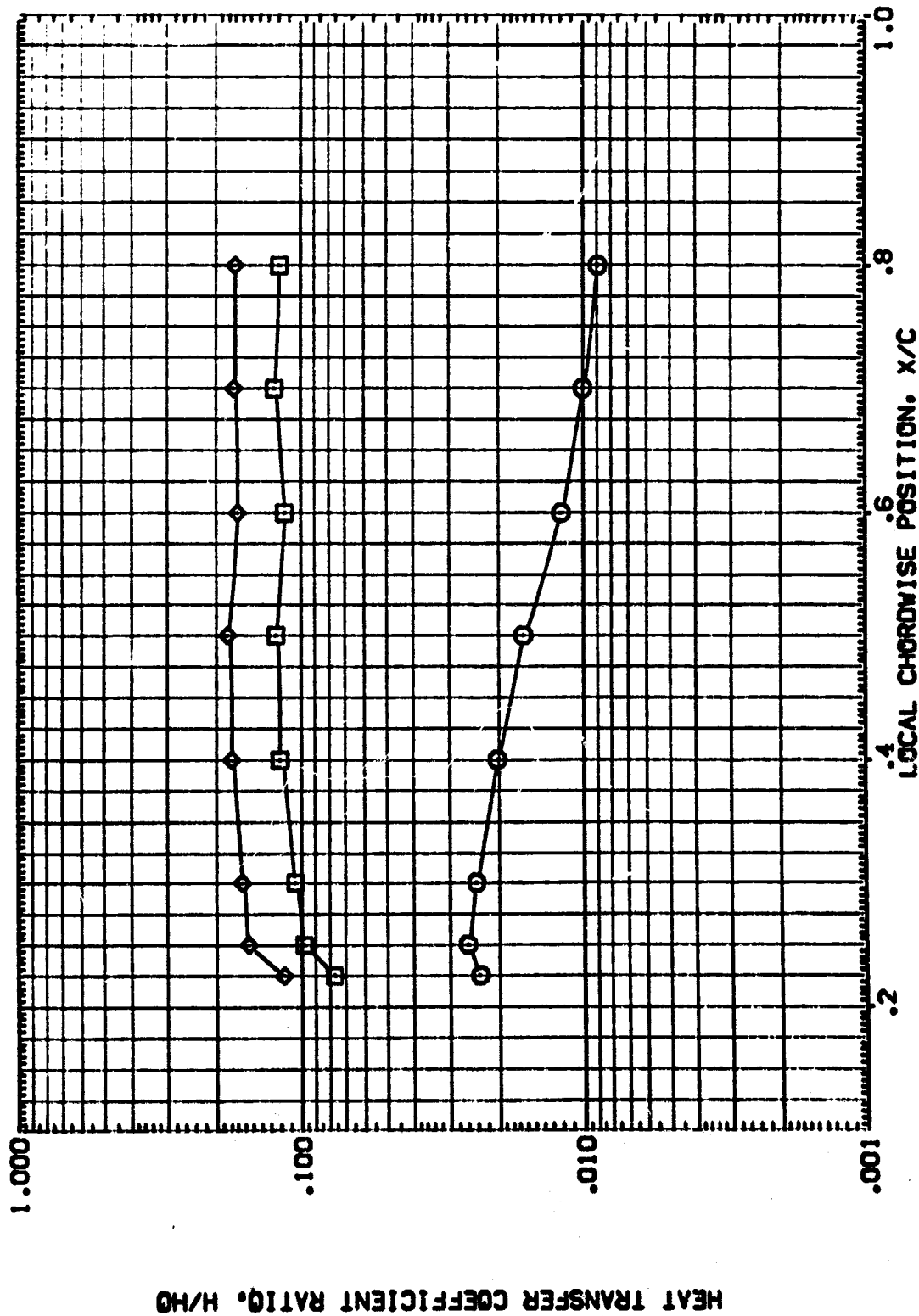


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 6.000 HAV/HT = .850 2Y/B = .800

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {W0001} 0-13 B10CS46707F-03N/S
 {W0002} 0-13 B10CS46707F-03N/S
 {W0003} 0-13 B10CS46707F-03N/S

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

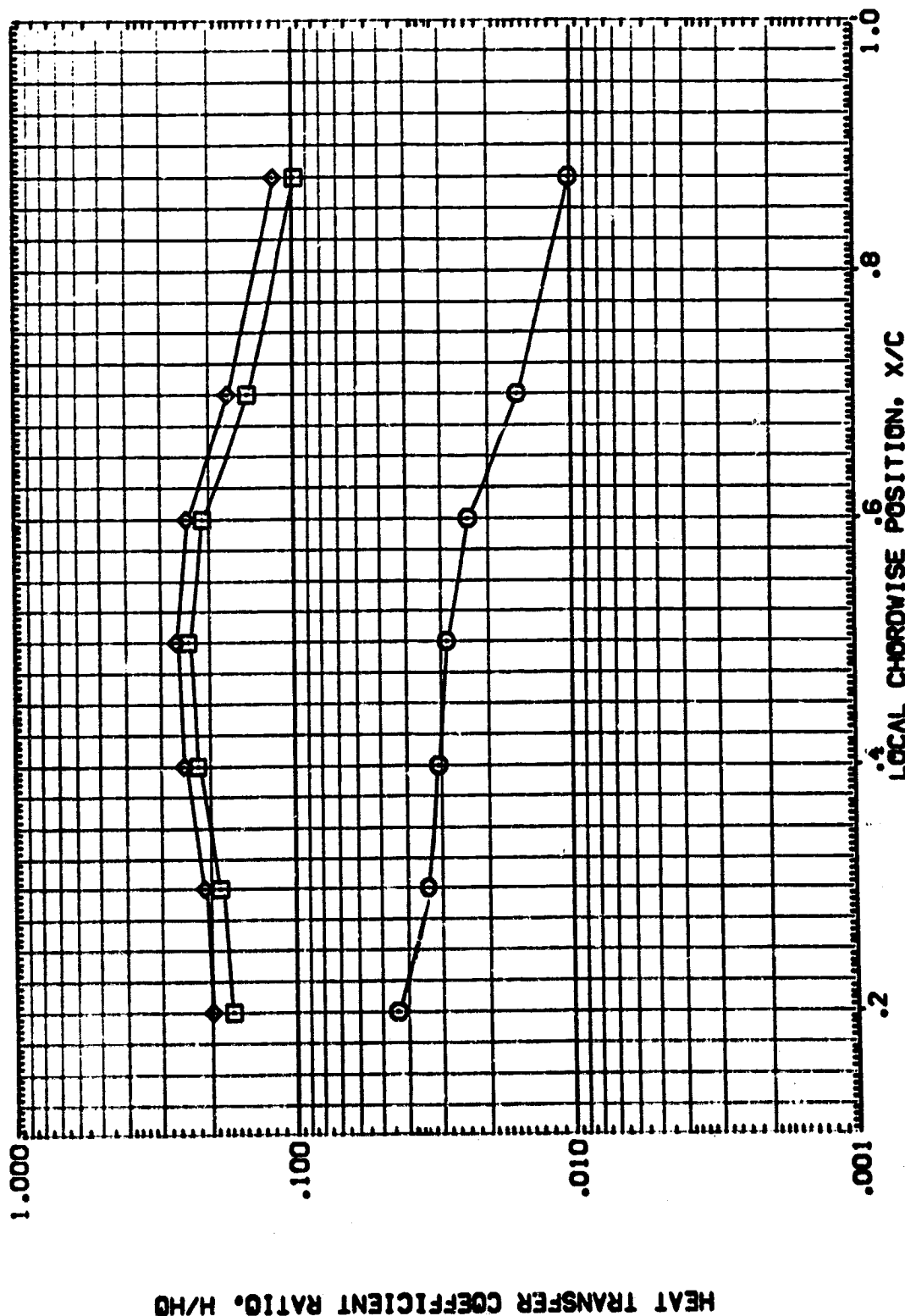


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 6.000 HAW/HT = 1.000 2Y/B = .400

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (VP0001) 0-13 810CS-8707F-4P3VS
 (VP0002) 0-13 810CS-8707F-4P3VS
 (VP0003) 0-13 810CS-8707F-4P3VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000

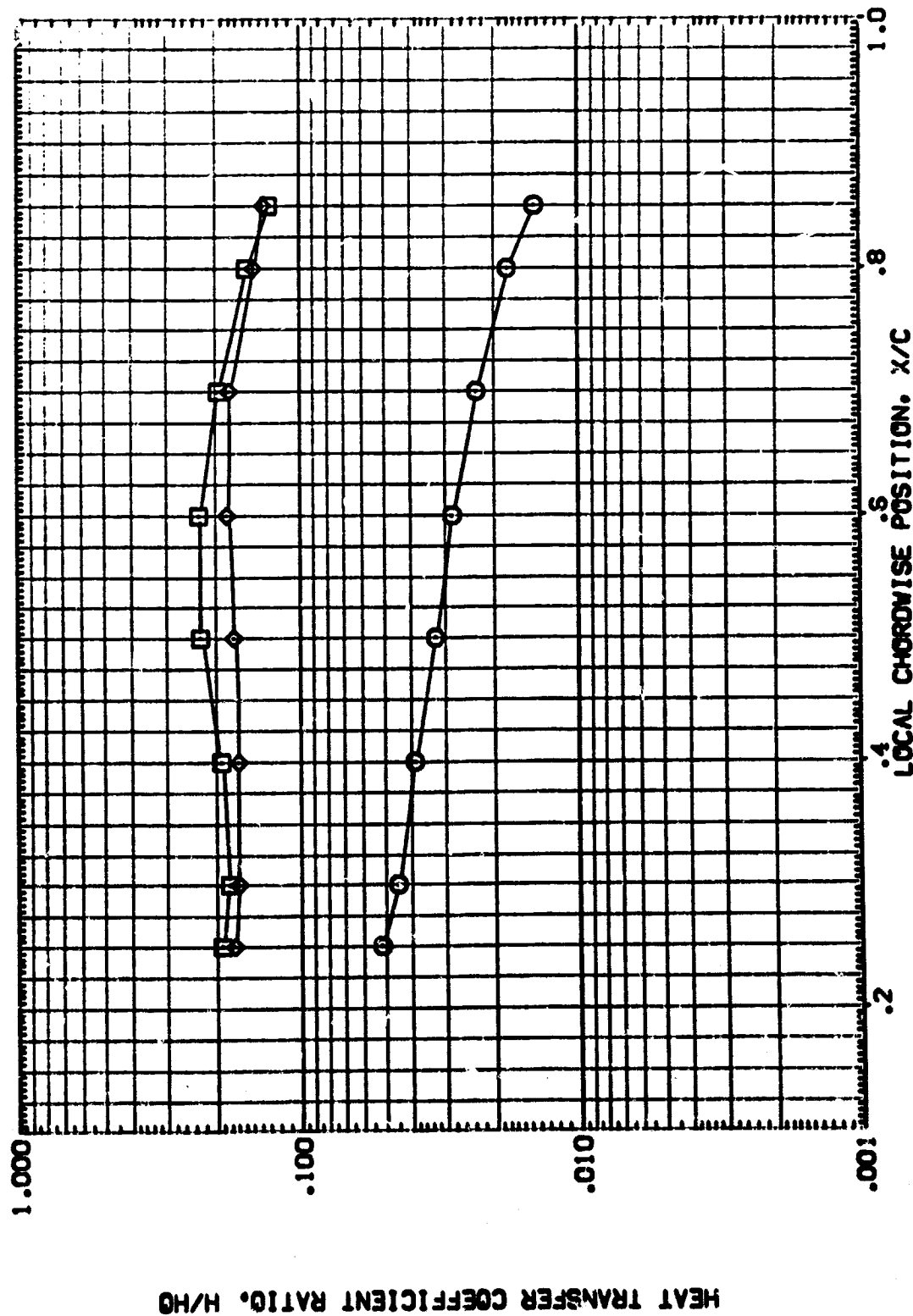


HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 6.000 HAW/HT = 1.000 2Y/B = .600

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {VP0001} 0-13 BLOCKS/UT/4-0VS
 {VP0002} 0-13 BLOCKS/UT/4-0VS
 {VP0003} 0-13 BLOCKS/UT/4-0VS

ALPHA ELEVON BETA RUDDER
 .000 .000 .000 .000
 30.000 .000 .000 .000
 35.000 .000 .000 .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

RN/L = 6.000 HAW/HT = 1.000 2Y/B = .800

0H13 810C5W87D7F4M3V5

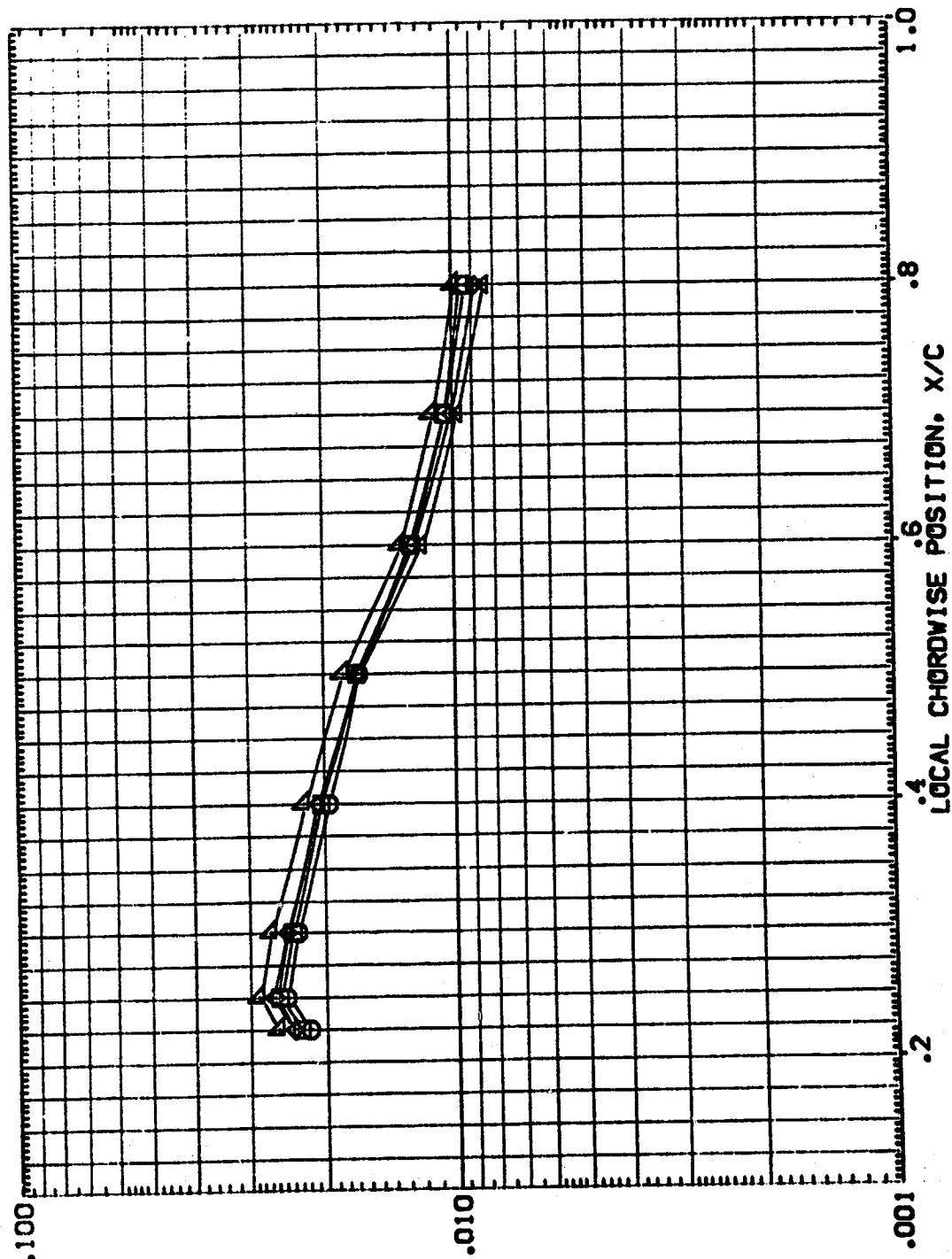
(WP00001)

SYMBOL
 7 6 5 4 3 2 1

RA/L
 1.000
 2.000
 3.000
 4.000
 6.000

2Y/B
 .100
 .650

PARAMETRIC VALUES
 MACH 8.000 ALPHA .000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

QH13 B10C5W87D7F4M3V5

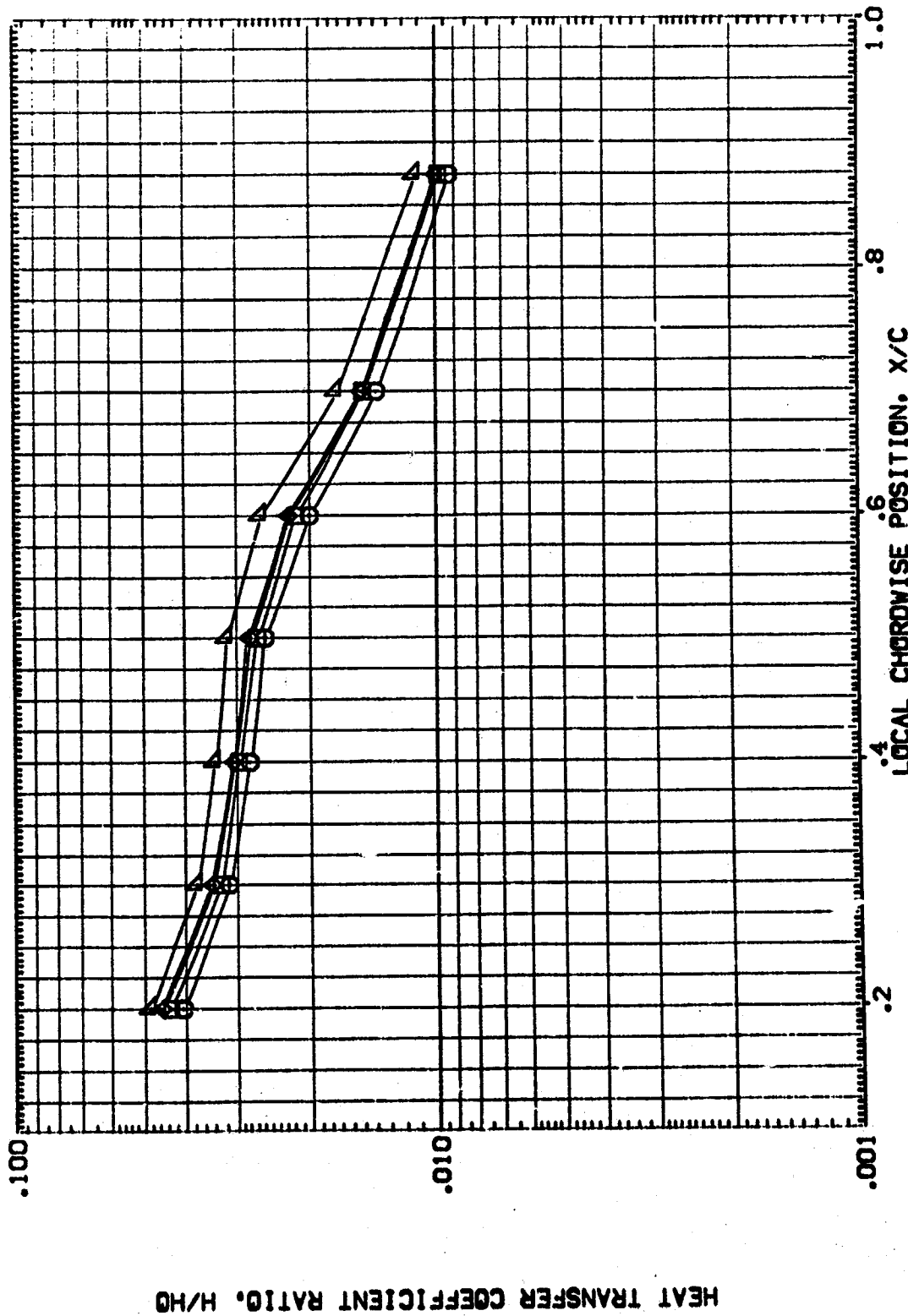
(WP0001)

SYMBOL
 7
 □
 ◇
 △

W/L
 1.000
 2.000
 3.000
 4.000
 6.000

Z/B
 .600
 .650

PARAMETRIC VALUES
 MACH 8.000 ALPHA .000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

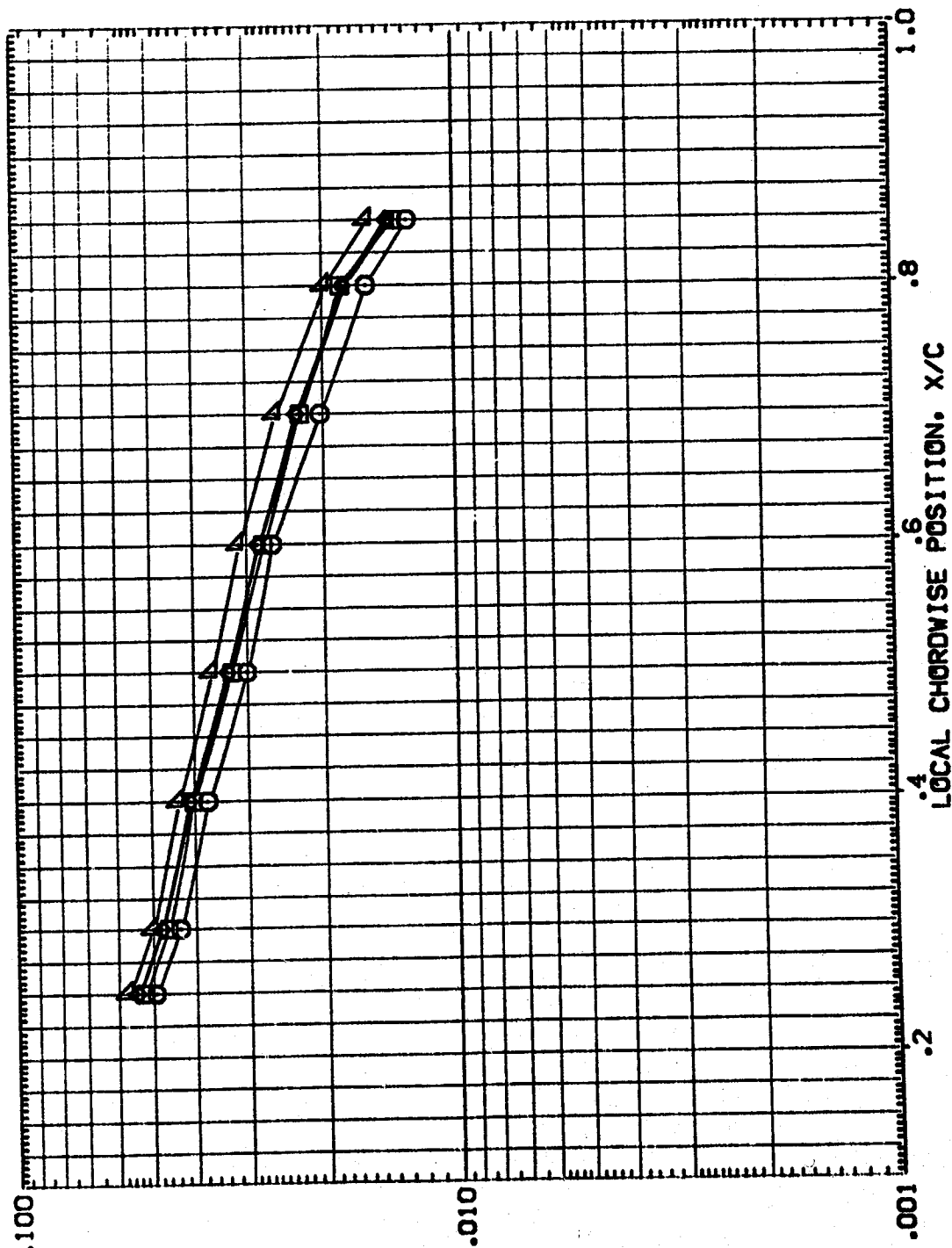
QH13 B10C5W87D7F4M3V5

(WP0001)

PARAMETRIC VALUES
 MACH 8.000 ALPHA .000
 BETA .000 ELEVON .000
 RUDDER .000

SYMBOL
 1.000
 2.000
 3.000
 4.000
 5.000

SYMBOL
 1.000
 2.000
 3.000
 4.000
 5.000



HEAT TRANSFER COEFFICIENT RATIO, H/H₀

LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

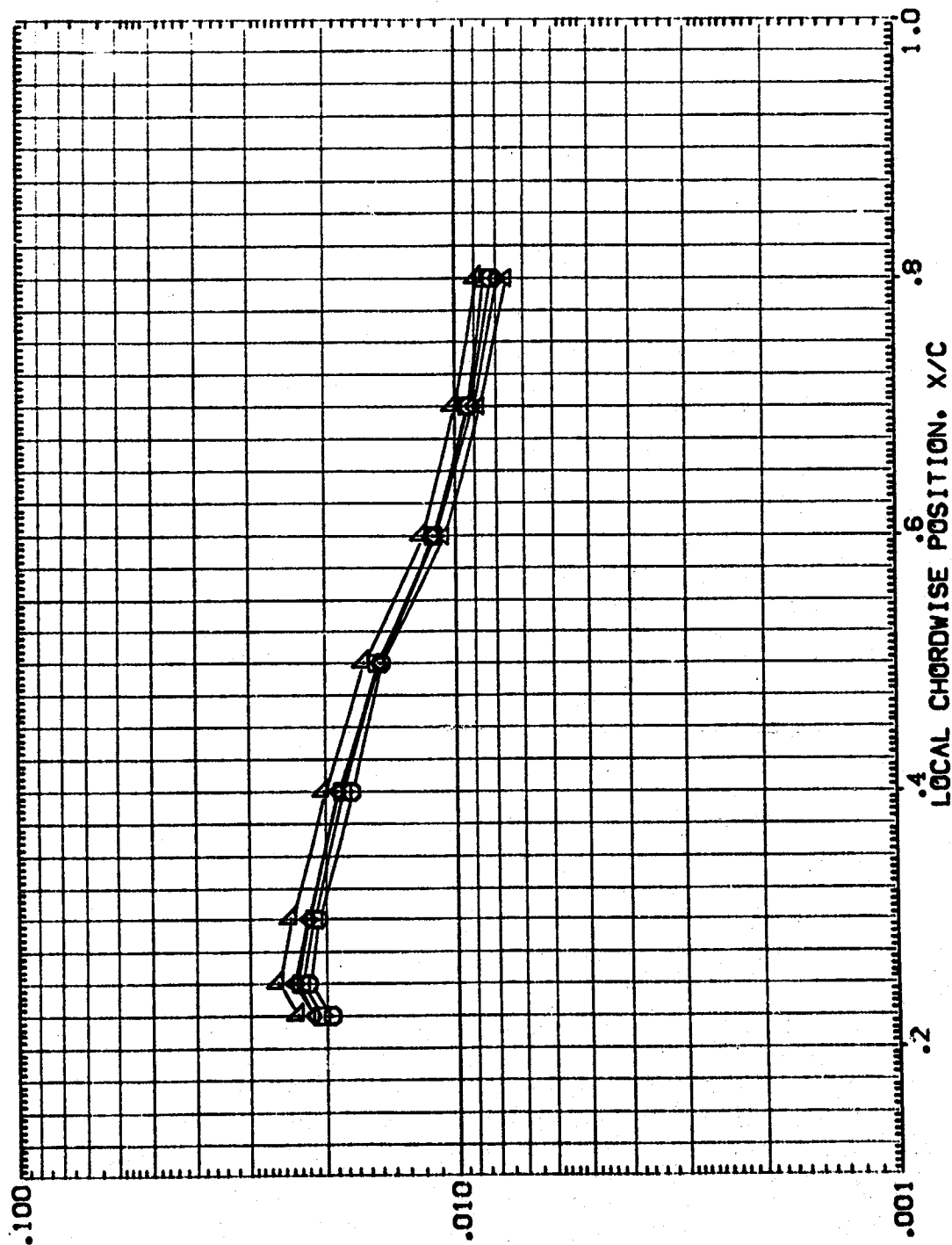
CH13 B10C5W87D7F4M3V5

(WP0001)

SYMBOL
 ∇ \diamond \square \triangle

REVL 2V/B HAV/MT
 1.000 .400 1.000
 2.000
 3.000
 4.000
 5.000

PARAMETRIC VALUES
 MACH 8.000 ALPHA .000
 BETA .000 ELEVON .000
 RUDDER .000



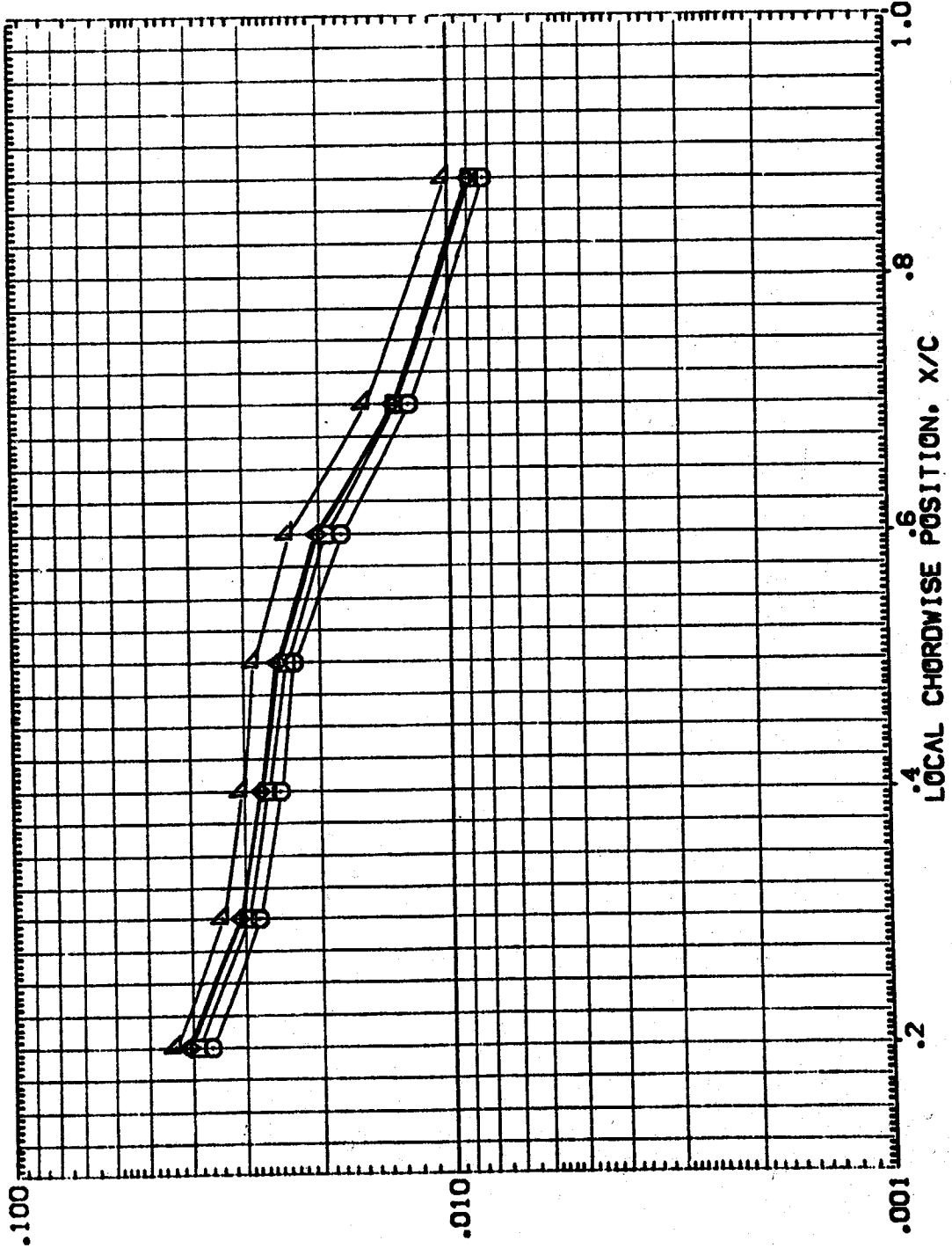
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

0H13 B10C5W87D7F4M3V5

(WP0001)

PARAMETRIC VALUES
 MACH 8.000 ALPHA .000
 BETA .000 ELEVON .000
 RUDDER .000

SYMBOL
 1.000
 2.000
 3.000
 4.000
 6.000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

0113 B10C5W87D7F4M3VS

(WP0001)

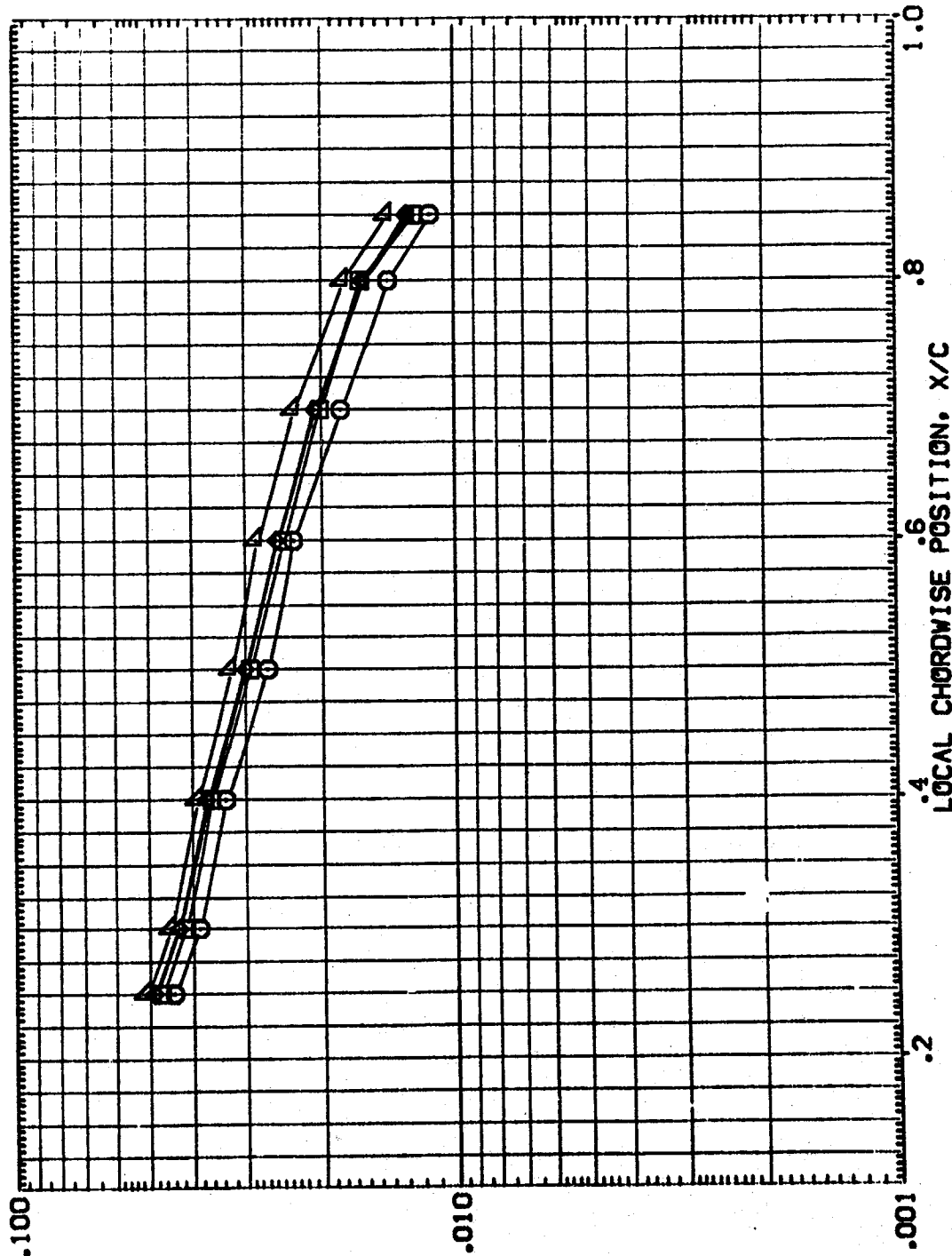
SYMBOL
 ○ □ ◇ △

W/L
 1.000
 2.000
 3.000
 4.000
 5.000

21/8
 .800
 1.000

MACH
 BETA
 RUDDER

PARAMETRIC VALUES
 8.000 ALPHA
 .000 ELEVON
 .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

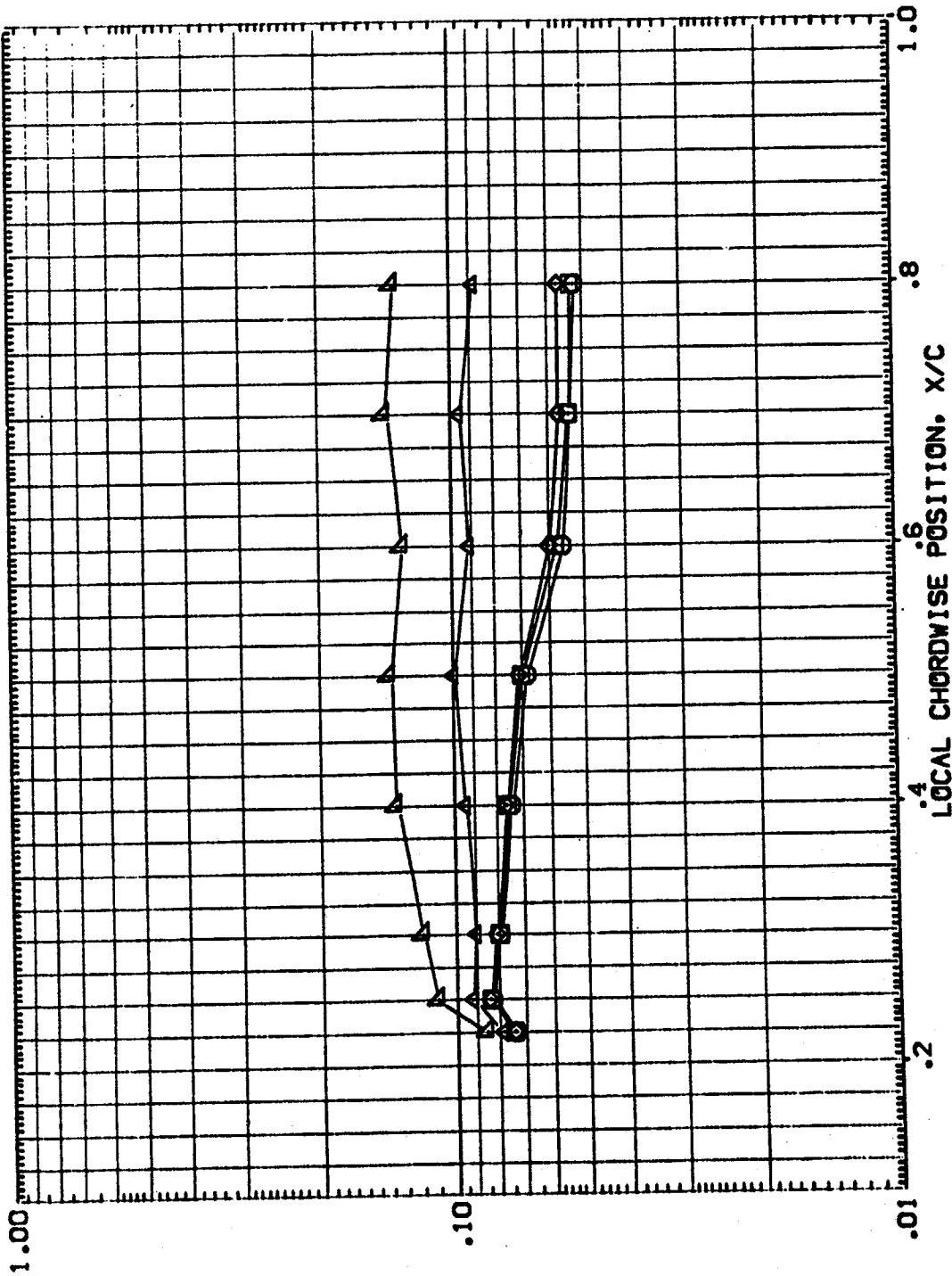
GH13 B10C5W87D7F4M3V5

(WP00002)

SYMBOL
 RV/L 1.000
 21/8 .400
 MACH .850

PARAMETRIC VALUES

MACH 8.000 ALPHA 30.000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHORDWISE POSITION, X/C

0H13 B10C5W87D7F4M3V5

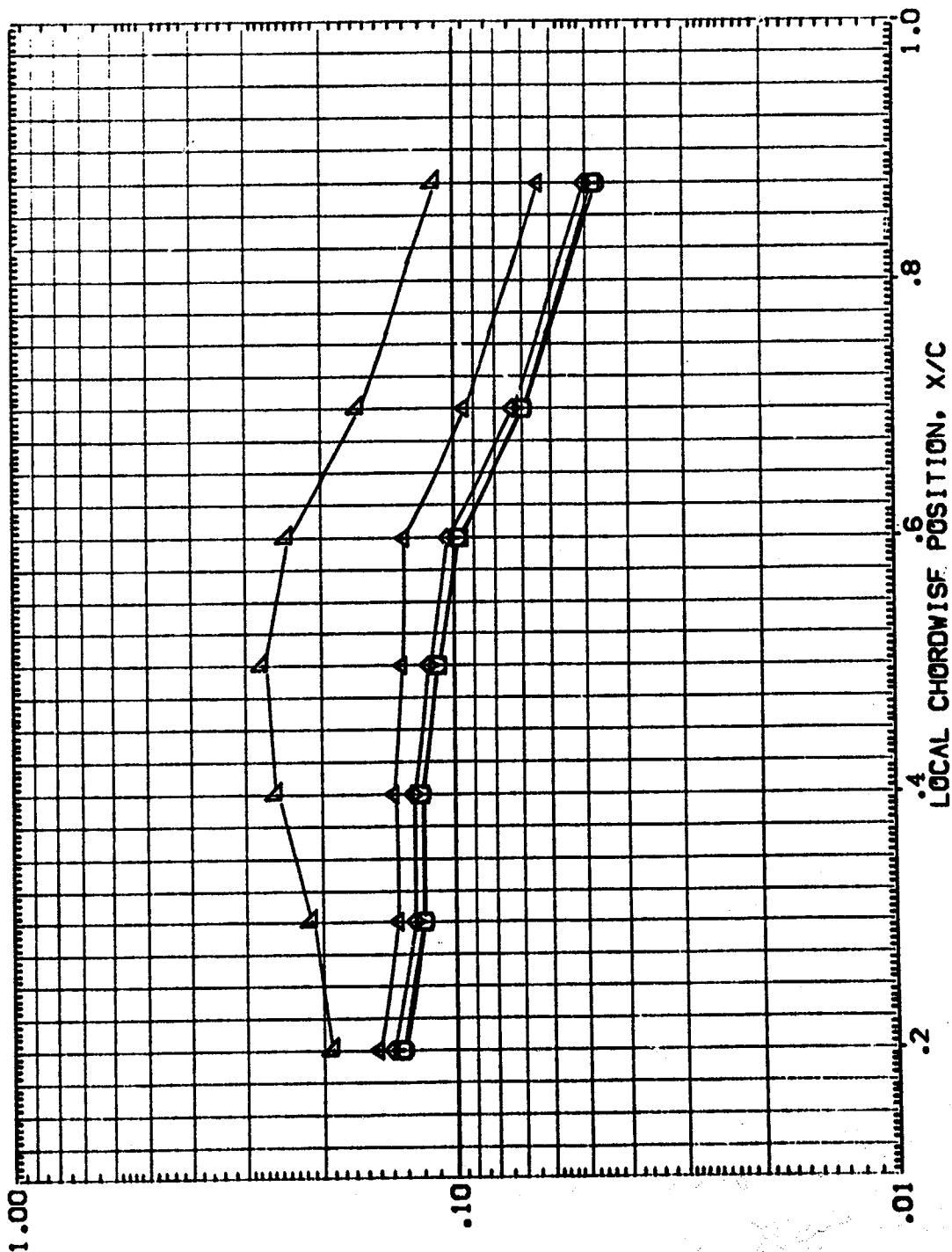
(WP00002)

SYMBOL
 ▽
 ◊
 □
 ○

Re/L
 1.000
 2.000
 3.000
 4.000
 6.000

2r/B HAV/MT
 .600 .850

PARAMETRIC VALUES
 MACH ALPHA 30.000
 BETA ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

OH13 B10C5W87D7F4M3V5

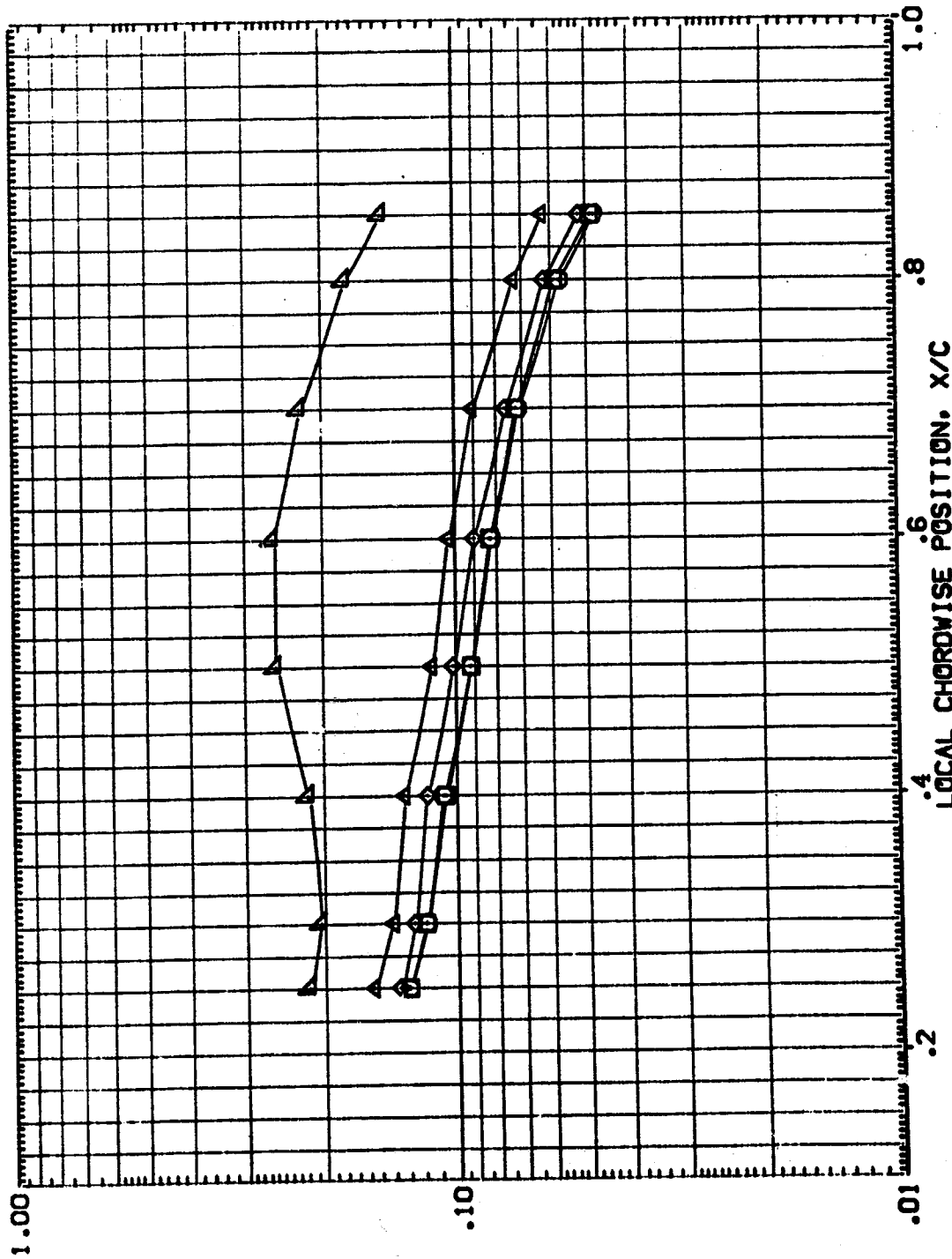
(WP00002)

SYMBOL
 ▽
 ◇
 □
 ○
 △

RA/L
 1.000
 2.000
 3.000
 4.000
 6.000

2V/B
 .800
 .850

PARAMETRIC VALUES
 MACH 8.000 ALPHA 30.000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

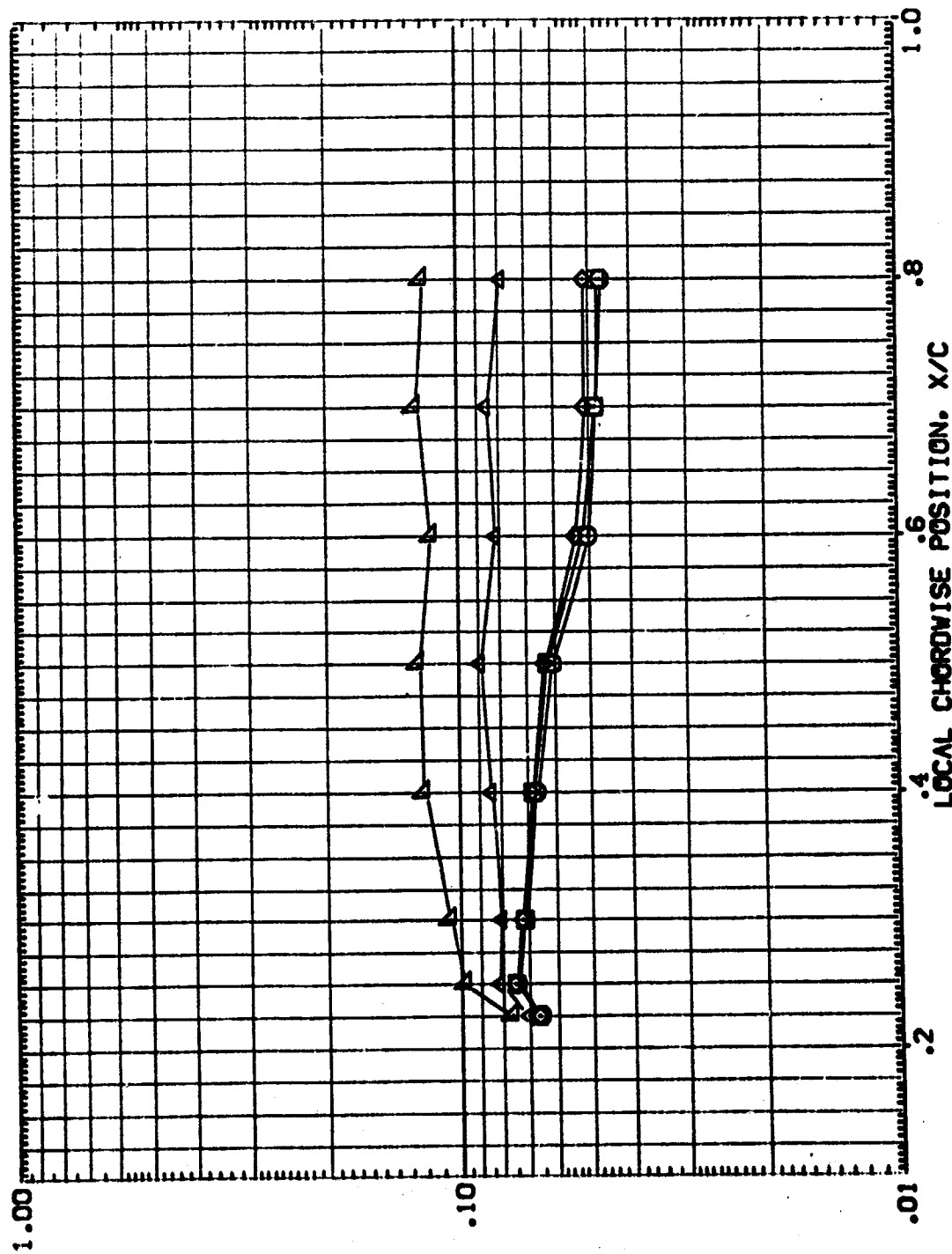
CHI3 B10C5W87D7F4M3V5

(WP00002)

PARAMETRIC VALUES
 MACH 30.000
 BETA .000
 ALPHA .000
 ELEVON .000
 RUDDER .000

REV. 1.000
 21/8 .400
 MAX/MT 1.000

SYMBOL
 7>◇□□



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

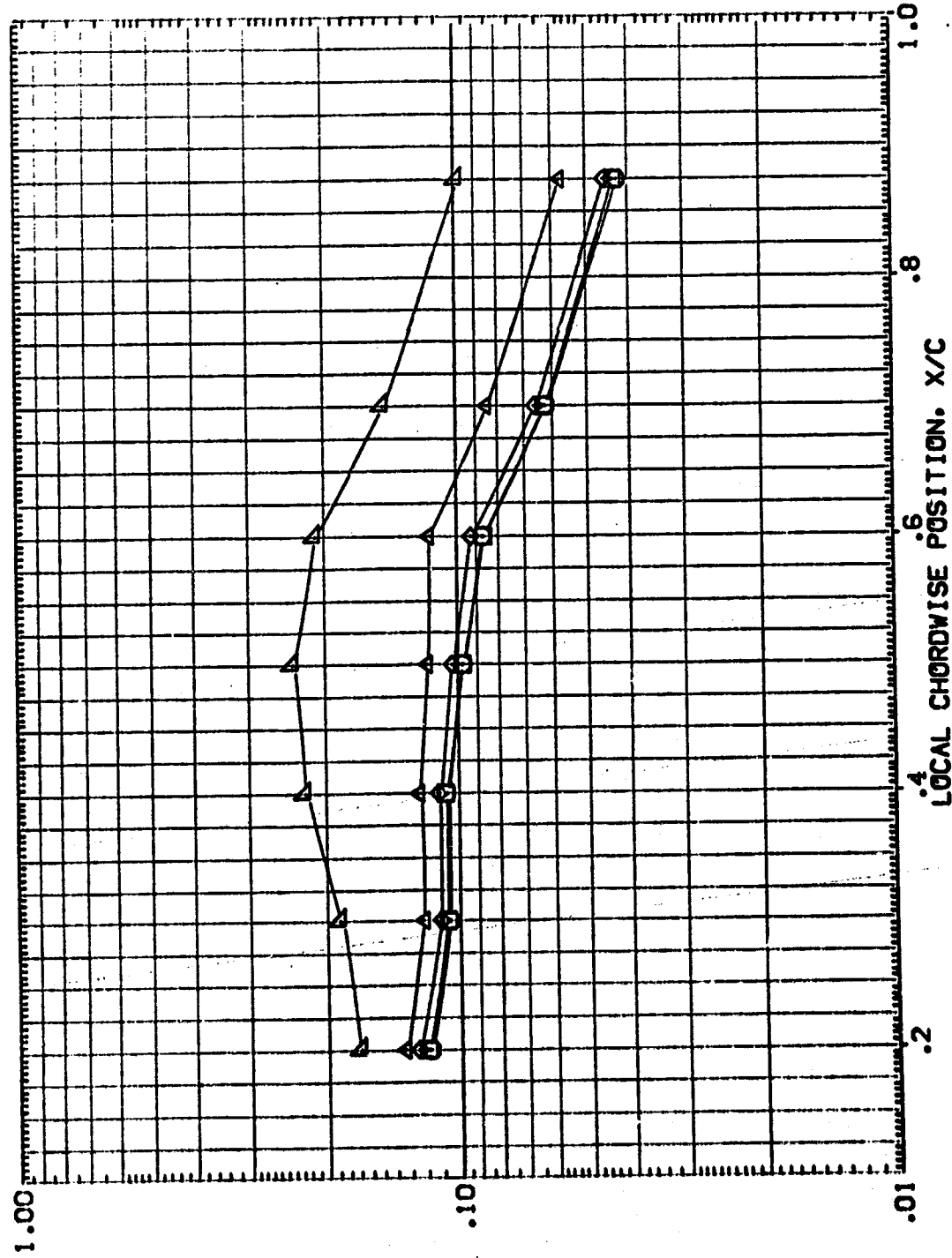
0413 B10C5W6707F4M3V5

(WP00002)

PARAMETRIC VALUES
 MACH 8.000 ALPHA 30.000
 BETA .000 ELEVON .000
 RUDDER .000

SYMBOL
 1.000
 2.000
 3.000
 4.000
 6.000

21/8 HAV/HT 1.000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHORDWISE POSITION, X/C

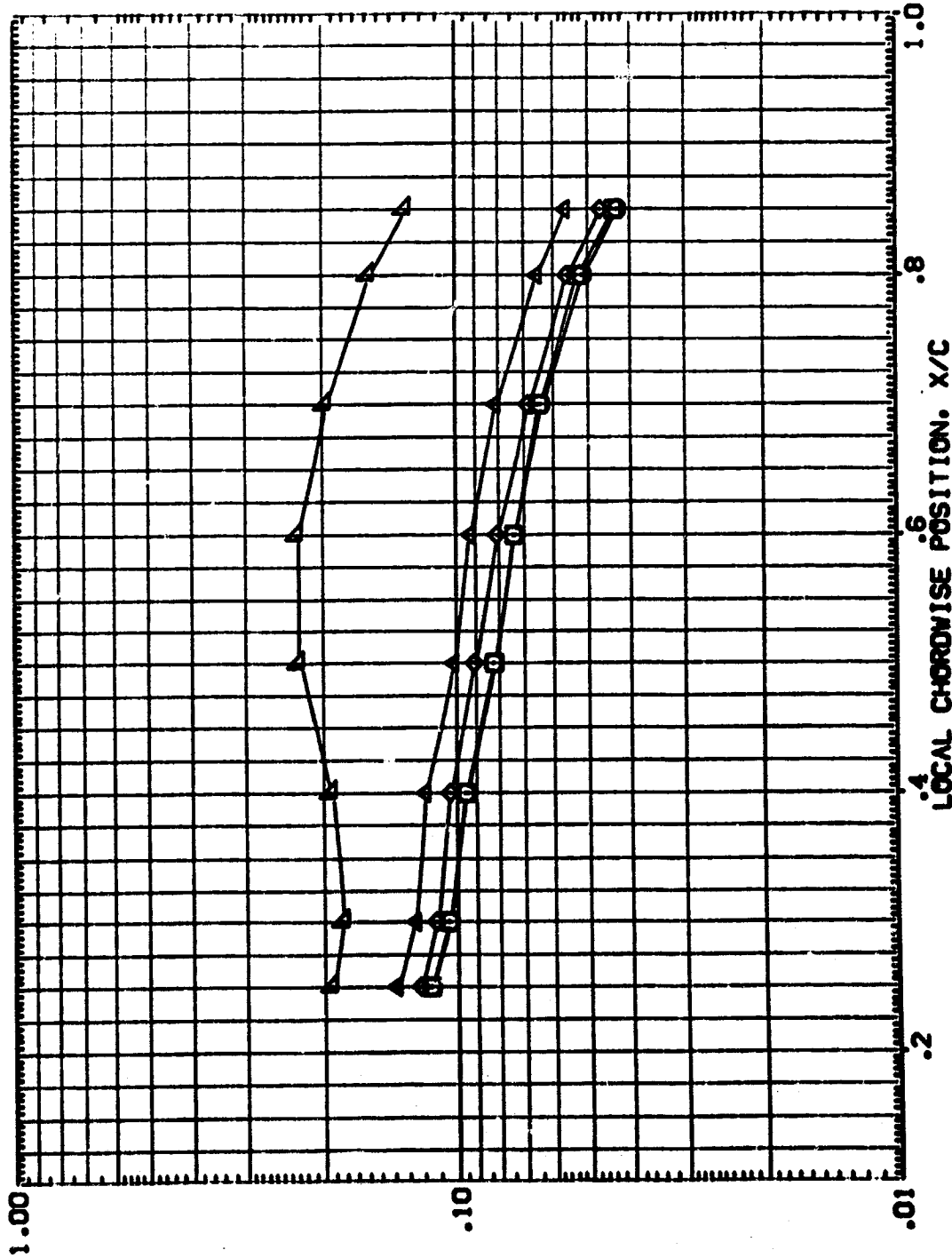
HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

CH13 B10CSW8707F4M3V5

(WP00002)

1.000
 2.000
 3.000
 4.000
 5.000
 6.000
 7.000
 8.000
 9.000
 10.000
 11.000
 12.000
 13.000
 14.000
 15.000
 16.000
 17.000
 18.000
 19.000
 20.000
 21.000
 22.000
 23.000
 24.000
 25.000
 26.000
 27.000
 28.000
 29.000
 30.000
 31.000
 32.000
 33.000
 34.000
 35.000
 36.000
 37.000
 38.000
 39.000
 40.000
 41.000
 42.000
 43.000
 44.000
 45.000
 46.000
 47.000
 48.000
 49.000
 50.000
 51.000
 52.000
 53.000
 54.000
 55.000
 56.000
 57.000
 58.000
 59.000
 60.000
 61.000
 62.000
 63.000
 64.000
 65.000
 66.000
 67.000
 68.000
 69.000
 70.000
 71.000
 72.000
 73.000
 74.000
 75.000
 76.000
 77.000
 78.000
 79.000
 80.000
 81.000
 82.000
 83.000
 84.000
 85.000
 86.000
 87.000
 88.000
 89.000
 90.000
 91.000
 92.000
 93.000
 94.000
 95.000
 96.000
 97.000
 98.000
 99.000
 100.000

MACH 30.000
 BETA .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

0H13 8:0C5W8707F4M3V5

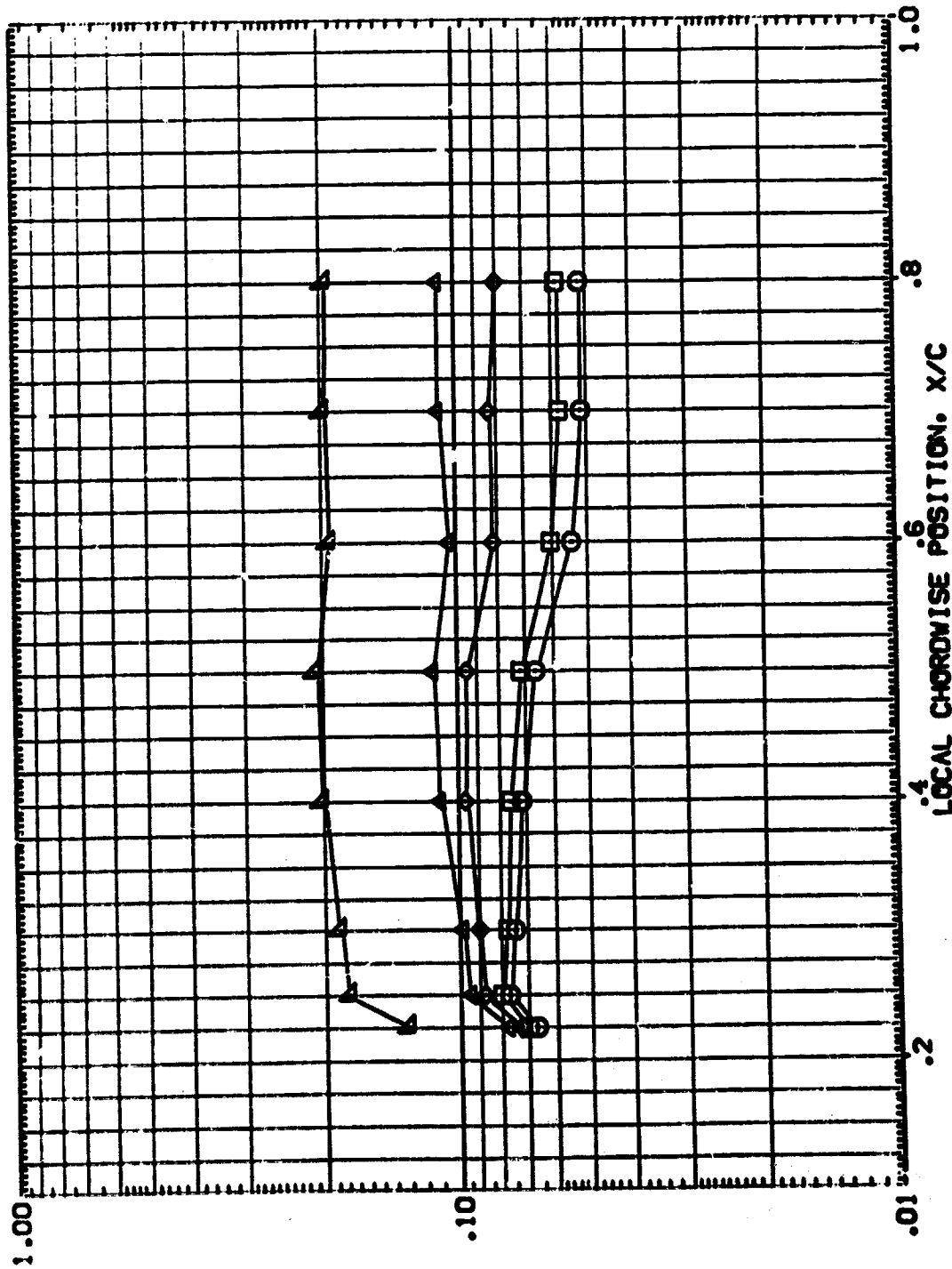
(WP00003)

PARAMETRIC VALUES
 MACH 9.000 ALPHA 35.000
 BETA .000 ELEVON .000
 RUDDER .000

REVL 21/8 HAV/MT .650

1.000
 2.000
 3.000
 4.000
 6.000

SYMBOL
 ○ □ ◇ △



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHORDWISE POSITION, X/C
 HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

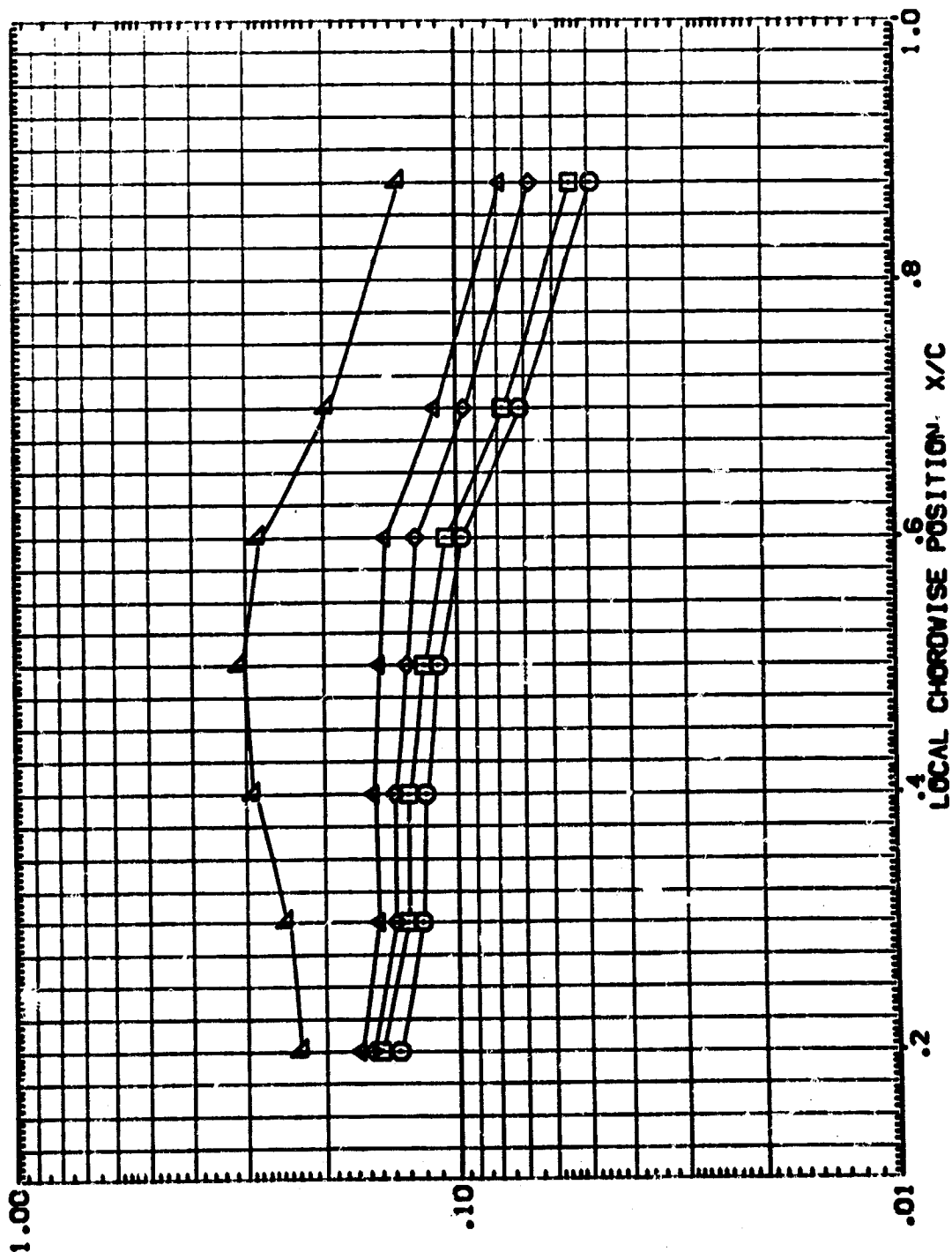
OH13 B10C5W87D7F4M3VS

(WP0003)

SWED. 74044
 RUL 1.000
 2.000
 3.000
 4.000
 5.000

21/8 .800
 144/417 .800

PARAMETRIC VALUES
 MACH 9.000 ALPHA 35.000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

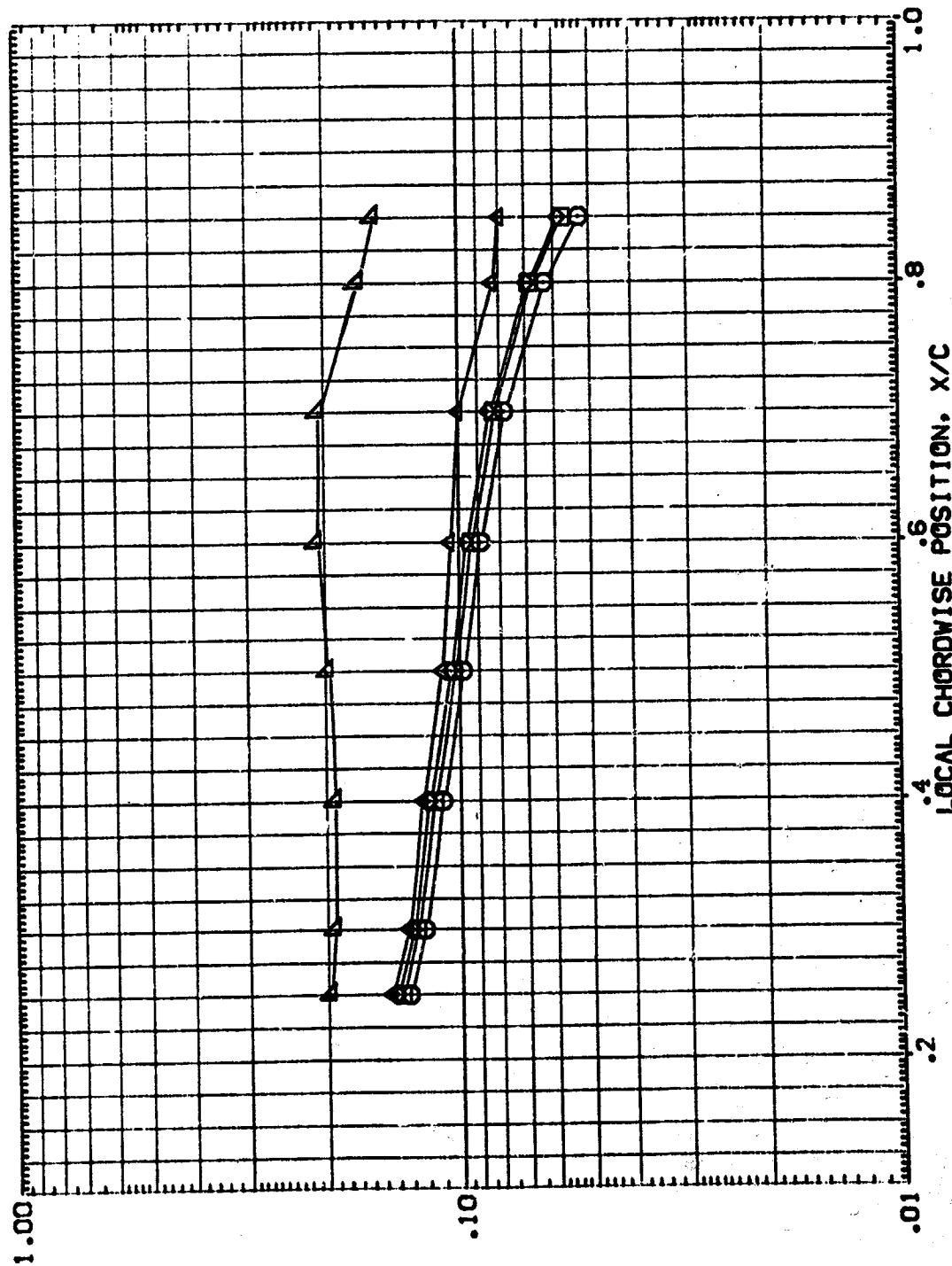
0H13 B10C5W87D7F4M3V5

(WP00003)

PARAMETRIC VALUES
 MACH 8.000 ALPHA 35.000
 BETA .000 ELEVON .000
 RUDDER .000

RV/L 2V/B HAV/HT
 1.000 .800 .850
 2.000
 3.000
 4.000
 6.000

SYMBOL
 7◇□□



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

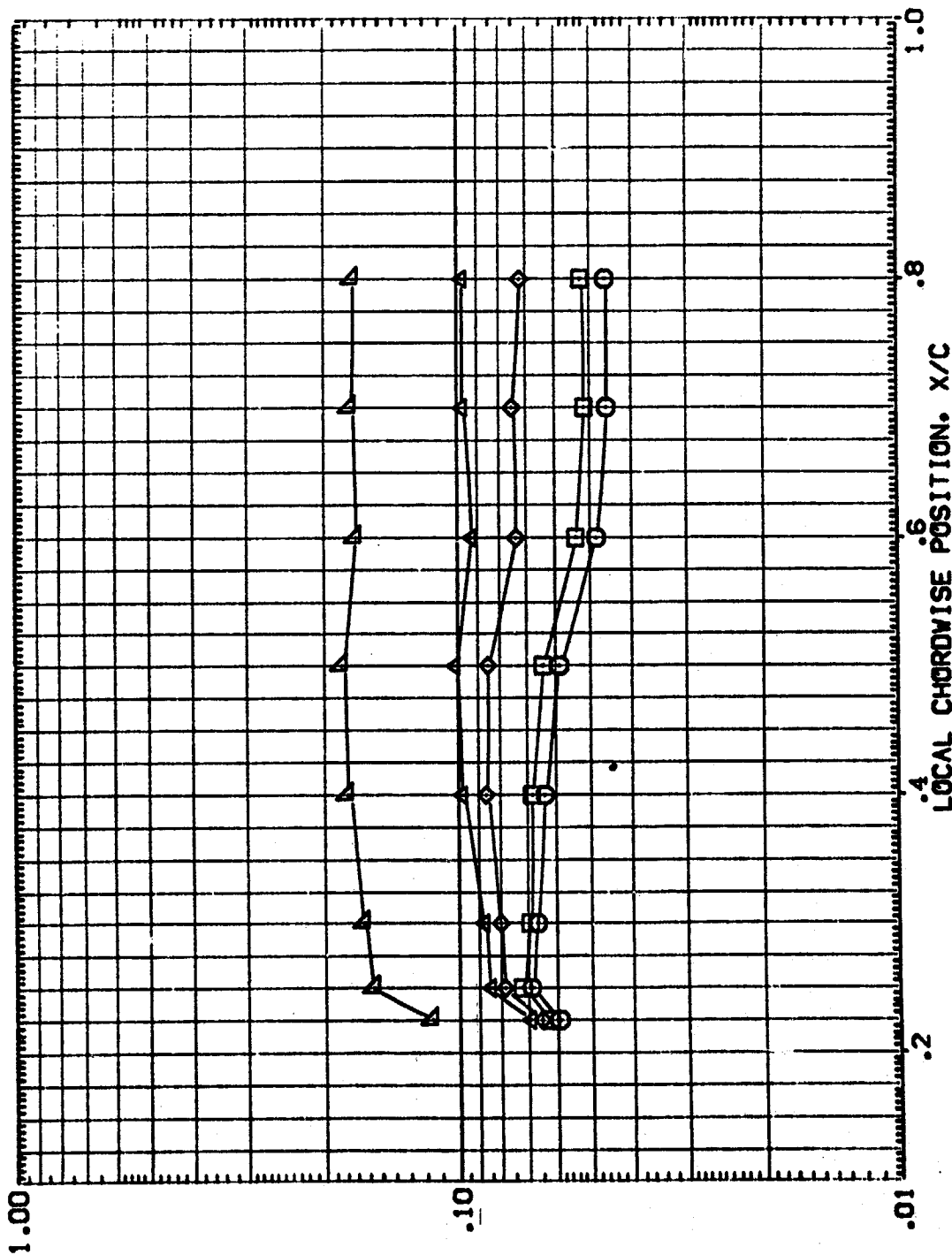
OH13 B10C5W87D7F4M3V5

(WP00003)

SYMBOL
 1.000
 2.000
 3.000
 4.000
 6.000

PARAMETRIC VALUES
 MACH 8.000
 BETA .000
 RUDDER .000

35.000
 .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHORDWISE POSITION, X/C
 HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

0H13 B10C5W87D7F4M3V5

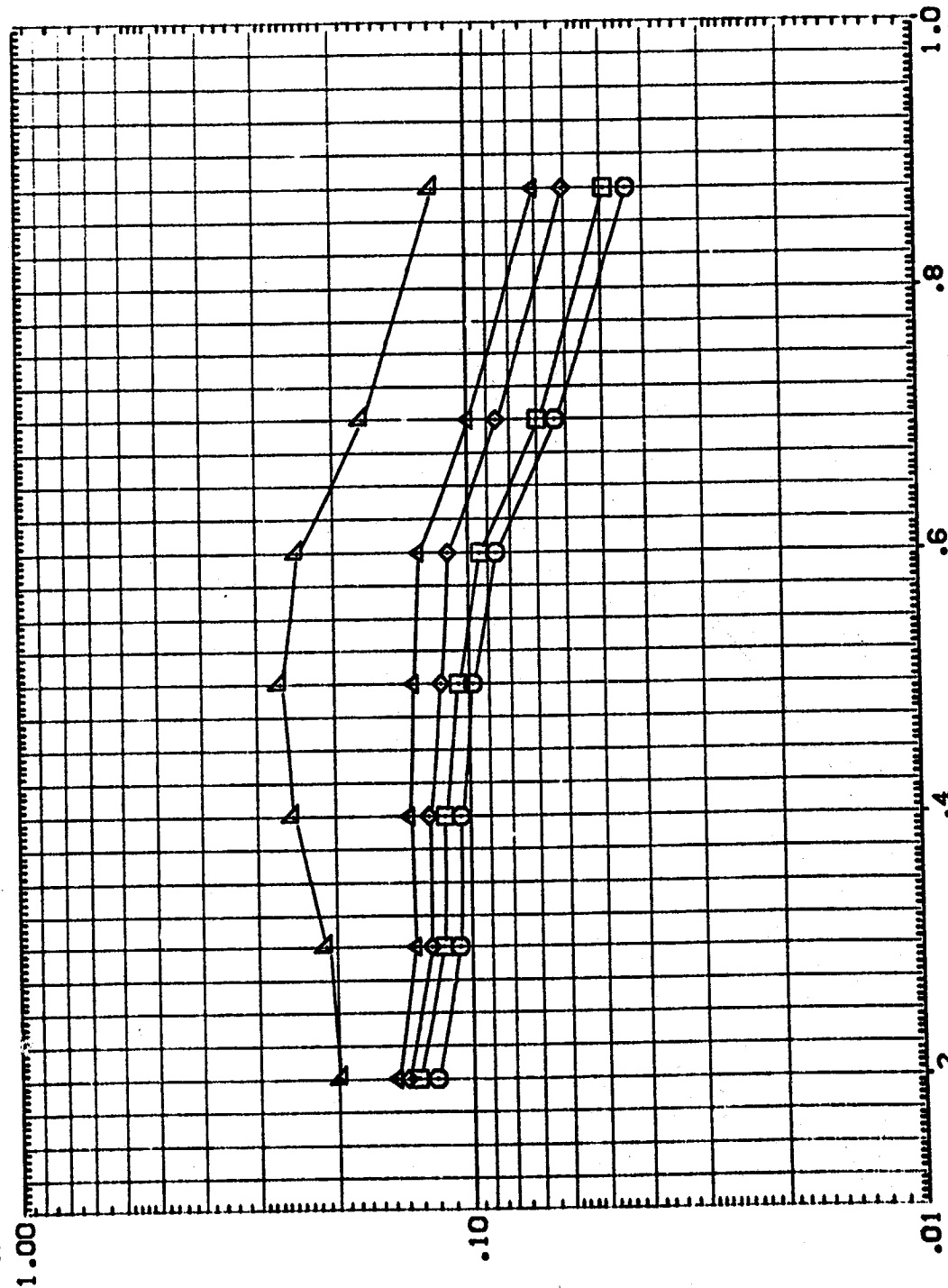
(WP0003)

SYMBOL
 ▽ ◆ □

RAVL
 1.000
 2.000
 3.000
 4.000
 6.000

2V/B HAV/MT
 .600 1.000

PARAMETRIC VALUES
 MACH 8.000 ALPHA 35.000
 BETA .000 ELEVON .000
 RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHORDWISE POSITION, X/C
 HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

OH13 B10C5V87D7F4M3V5

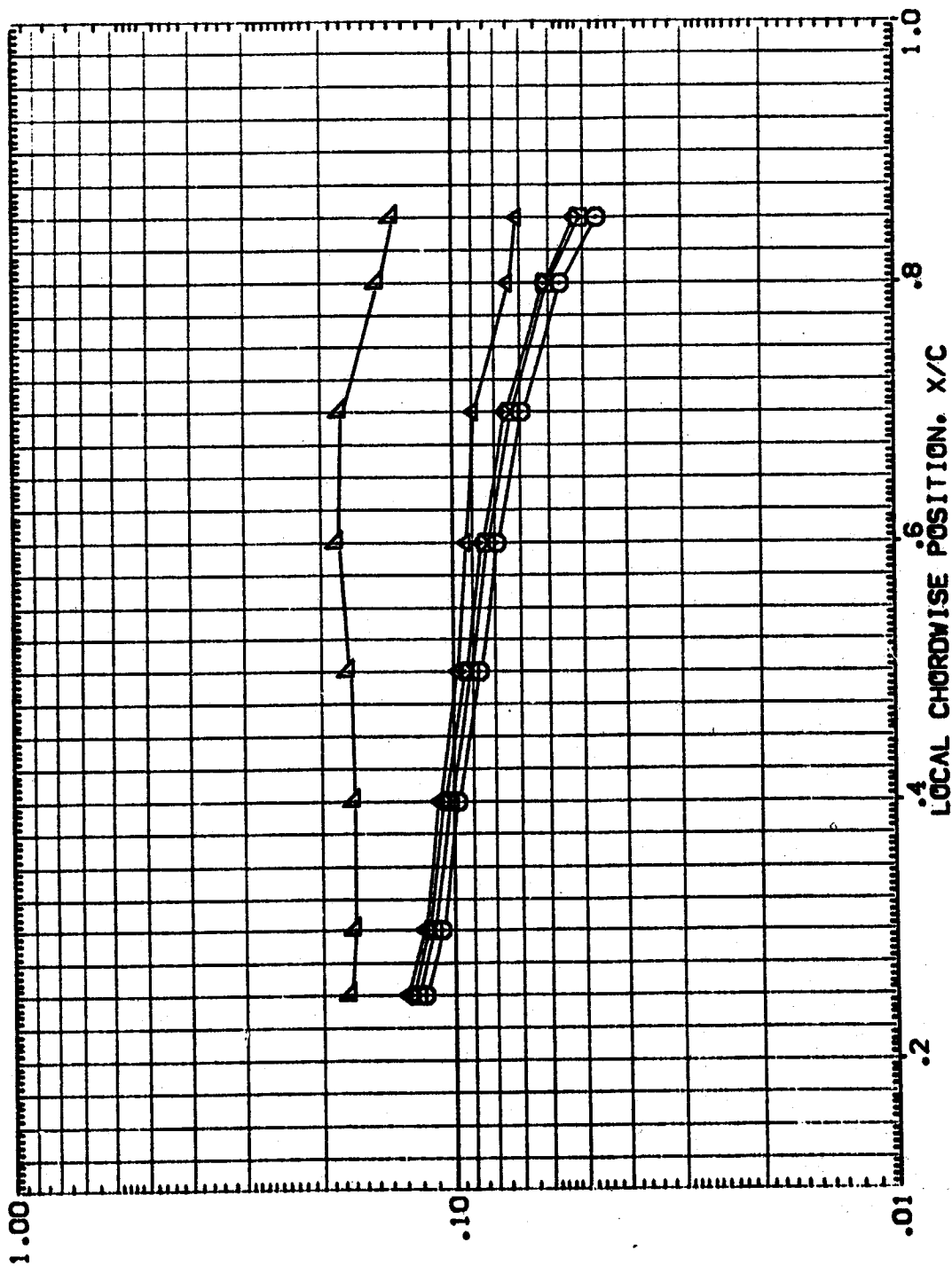
(WP0003)

STREQ. $\nabla \diamond \square \triangle$

WVL 1.000
2.000
3.000
4.000
5.000

ZV/B .800
WV/M 1.000

PARAMETRIC VALUES
MACH 9.000 ALPHA 35.000
BETA .000 ELEVON .000
RUDDER .000



HEAT TRANSFER COEFFICIENT RATIO, H/H0

LOCAL CHORDWISE POSITION, X/C

HEAT TRANSFER COEFFICIENT RATIOS ON ORBITER WING

APPENDIX
TABULATED SOURCE DATA

Tabulations of plotted data are available on request from
Data Management Services.

DATE 23 JUL 74

GR0001) (20 JUL 74)

CH13 810C3-8707F4HGVS

PARAMETRIC DATA

MACH = 8.000 ALPHA = .000
 BETA = .000 ELEVON = .000
 RUDDER = .000

TO = 1230.889 HO = .040

REFERENCE DATA

SREF = 2680.0000 SQ.FT. WREF = .0000 IN.
 LREF = 474.8000 IN. YREF = .0000 IN.
 BREF = 936.7000 IN. ZREF = .0000 IN.
 SCALE = .0029 SCALE

RVAL (1) = 1.000 HVAL(1) = .850 MACH = 7.772 PO = 182.026 TO = 1230.889 HO = .040

DEPENDENT VARIABLE H/HO

SECTION (1) BODY

Y 6P) .0000 70.0000

X/L .008 .0225
 .100 .0192
 .125 .0141
 .150 .0112
 .175 .0094
 .200 .0084
 .250 .0065
 .300 .0050
 .350 .0035
 .375 .0025
 .400 .0018
 .500 .0008
 .600 .0004
 .700 .0002
 .800 .0001
 .900 .0000
 1.000 .0000
 1.025 .0000

RVAL (1) = 1.000 HVAL(2) = 1.000 MACH = 7.772 PO = 182.026 TO = 1230.889 HO = .040

DEPENDENT VARIABLE H/HO

SECTION (1) BODY

Y 6P) .0000 70.0000

X/L .008 .0001
 .100 .0171
 .125 .0126
 .150 .0100
 .175 .0084
 .200 .0075
 .250 .0074
 .300 .0064
 .350 .0050
 .375 .0035
 .400 .0025
 .500 .0008
 .600 .0004
 .700 .0002
 .800 .0001
 .900 .0000
 1.000 .0000
 1.025 .0000

TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

(BFO001)

CH13 910C3A8707F4MSVS

RAVL (1) = 1.000 HAWAHT(2) = 1.000

SECTION (1) BODY

Y (P) .0000 70.0000

X/L
 .600 .0039 .0074
 .700 .0038 .0058
 .800 .0029 .0050
 .900 .0026 .0034
 1.000 .0034
 1.025 .0021

RAVL (2) = 2.000 HAWAHT(1) = .890 MACH = 7.883 PO = 401.847 TO = 1312.202 HO = .061

SECTION (1) BODY

Y (P) .0000 70.0000

X/L
 .088 .0236
 .100 .0199
 .125 .0143
 .150 .0117
 .175 .0094
 .200 .0080
 .250 .0082
 .300 .0069
 .350 .0080
 .375 .0096
 .400 .0063
 .500 .0053
 .600 .0047
 .700 .0070
 .800 .0035
 .900 .0030
 1.000 .0038
 1.025 .0013

RAVL (2) = 2.000 HAWAHT(2) = 1.000 MACH = 7.883 PO = 401.847 TO = 1312.202 HO = .061

SECTION (1) BODY

Y (P) .0000 70.0000

X/L
 .088 .0212
 .100 .0178
 .125 .0129
 .150 .0105
 .175 .0084



TABULATED HEAT TRANSFER DATA FOR OH13 LARC VENT 6-4

(BPO001)

OH13 810C3-6707E4HSV5

RAVL (2) = 2.000 HAWHT(2) = 1.000

SECTION (1) BODY DEPENDENT VARIABLE H/HO

Y(8P) .0000 70.0000

X/L	
.200	.0061
.250	.0074
.300	.0082
.350	.0090
.375	.0096
.400	.0097
.500	.0090
.600	.0082
.700	.0062
.800	.0053
.900	.0027
1.000	.0034
1.025	.0011

RAVL (3) = 3.000 HAWHT(1) = .850 MACH = 7.945 PO = 646.050 TO = 1404.168 HO = .077

SECTION (1) BODY DEPENDENT VARIABLE H/HO

Y(8P) .0000 70.0000

X/L	
.086	.0246
.100	.0205
.125	.0147
.150	.0114
.175	.0095
.200	.0086
.250	.0080
.300	.0069
.350	.0060
.375	.0050
.400	.0039
.500	.0053
.600	.0046
.700	.0071
.800	.0056
.900	.0026
1.000	.0000
1.025	.0025

TABULATED HEAT TRANSFER DATA FOR OH13 LARC VCHT-644

DATE 23 JUL 74

(BFO0001)

OH13 81DC2487D7F4MSV5

RAVL (3) = 3.000 MAWHT(2) = 1.000 MACH = 7.945 PO = 646.050 TO = 1404.168 MO = .077

DEPENDENT VARIABLE H/MO

SECTION (1) BODY

Y (E) .0000 70.0000

X/L

.000	.0222
.100	.0185
.125	.0132
.150	.0103
.175	.0084
.200	.0077
.250	.0072
.300	.0062
.350	.0062
.375	.0050
.400	.0053
.500	.0048
.600	.0042
.700	.0064
.800	.0032
.900	.0023
1.000	.0032
1.025	.0025

RAVL (4) = 4.000 MAWHT(1) = .850 MACH = 7.980 PO = 855.101 TO = 1374.570 MO = .087

DEPENDENT VARIABLE H/MO

SECTION (1) BODY

Y (E) .0000 70.0000

X/L

.000	.0249
.100	.0206
.125	.0147
.150	.0113
.175	.0069
.200	.0085
.250	.0075
.300	.0064
.350	.0066
.375	.0055
.400	.0057
.500	.0051
.600	.0044
.700	.0068
.800	.0053
.900	.0028
1.000	.0035
1.025	.0025

DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR OH13 LARC VENT-644

GP00011

OH13 B10C9-B707F-1XGV5

RA/L (4) = 4.000 WA/WHT(2) = 1.000 MACH = 7.960 PO = 855.101 TO = 1374.570 HO = .087

SECTION (1) BODY DEPENDENT VARIABLE H/MO

Y(8P) .0000 70.0000

X/L
 .000 .0224
 .100 .0165
 .125 .0133
 .150 .0101
 .175 .0080
 .200 .0074
 .250 .0068
 .300 .0058
 .350 .0079
 .375 .0086
 .400 .0096
 .500 .0089
 .600 .0075
 .700 .0061
 .800 .0046
 .900 .0025
 1.000 .0032
 1.025 .0022

RA/L (5) = 6.000 WA/WHT(1) = .850 MACH = 8.040 PO = 1411.324 TO = 1421.927 HO = .108

SECTION (1) BODY DEPENDENT VARIABLE H/MO

Y(8P) .0000 70.0000

X/L
 .000 .0273
 .100 .0225
 .125 .0199
 .150 .0121
 .175 .0096
 .200 .0086
 .250 .0080
 .300 .0067
 .350 .0097
 .375 .0104
 .400 .0116
 .500 .0054
 .600 .0069
 .700 .0075
 .800 .0056
 .900 .0030
 1.000 .0033
 1.025 .0027

DATE 23 JUL 74

TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

PAGE 6

CH13 BIDC346707746VS

(BFO001)

IN/L (S) = 6.000 MAJ/HT(2) = 1.000 MACH = 8.040 PO = 1411.324 TO = 1421.927 HO = .108

DEPOSIT VARIABLE NAME

SECTION (1) BODY

Y (BF) .0000 70.0000

Y/L	
.008	.0246
.100	.0203
.125	.0143
.150	.0109
.175	.0087
.200	.0079
.250	.0072
.300	.0060
.350	.0067
.375	.0084
.400	.0104
.500	.0084
.600	.0080
.700	.0067
.800	.0052
.900	.0027
1.000	.0050
1.025	.0024



TABULATED HEAT TRANSFER DATA FOR OH13 LARC NO-TT-644

OH13 810C3-8707F4H5V3

870002) (20 JUL 74)

REFERENCE DATA

REF = 2880.0000 28.87 FT. WPP = .0000 IN.
 LWT = 474.0000 IN. WPP = .0000 IN.
 REF = 936.7000 IN. WPP = .0000 IN.
 SCALE = .0000 SCALE

PARAMETRIC DATA

MACH = 6.000 ALPHA = 30.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

NO = 1306.705 NO = .041

DEPENDENT VARIABLE MACH

SECTION (1) BODY

Y (1) = 1.000 WPP (1) = .000

Y (2) = 1.000 WPP (2) = .000

Y (3) = 1.000 WPP (3) = .000

Y (4) = 1.000 WPP (4) = .000

Y (5) = 1.000 WPP (5) = .000

Y (6) = 1.000 WPP (6) = .000

Y (7) = 1.000 WPP (7) = .000

Y (8) = 1.000 WPP (8) = .000

Y (9) = 1.000 WPP (9) = .000

Y (10) = 1.000 WPP (10) = .000

Y (11) = 1.000 WPP (11) = .000

Y (12) = 1.000 WPP (12) = .000

Y (13) = 1.000 WPP (13) = .000

Y (14) = 1.000 WPP (14) = .000

Y (15) = 1.000 WPP (15) = .000

Y (16) = 1.000 WPP (16) = .000

Y (17) = 1.000 WPP (17) = .000

Y (18) = 1.000 WPP (18) = .000

Y (19) = 1.000 WPP (19) = .000

Y (20) = 1.000 WPP (20) = .000

Y (21) = 1.000 WPP (21) = .000

Y (22) = 1.000 WPP (22) = .000

Y (23) = 1.000 WPP (23) = .000

Y (24) = 1.000 WPP (24) = .000

Y (25) = 1.000 WPP (25) = .000

Y (26) = 1.000 WPP (26) = .000

Y (27) = 1.000 WPP (27) = .000

Y (28) = 1.000 WPP (28) = .000

Y (29) = 1.000 WPP (29) = .000

Y (30) = 1.000 WPP (30) = .000

DEPENDENT VARIABLE MACH

SECTION (1) BODY

Y (1) = 1.000 WPP (1) = .000

Y (2) = 1.000 WPP (2) = .000

Y (3) = 1.000 WPP (3) = .000

Y (4) = 1.000 WPP (4) = .000

Y (5) = 1.000 WPP (5) = .000

Y (6) = 1.000 WPP (6) = .000

Y (7) = 1.000 WPP (7) = .000

Y (8) = 1.000 WPP (8) = .000

Y (9) = 1.000 WPP (9) = .000

Y (10) = 1.000 WPP (10) = .000

Y (11) = 1.000 WPP (11) = .000

Y (12) = 1.000 WPP (12) = .000

Y (13) = 1.000 WPP (13) = .000

Y (14) = 1.000 WPP (14) = .000

Y (15) = 1.000 WPP (15) = .000

Y (16) = 1.000 WPP (16) = .000

Y (17) = 1.000 WPP (17) = .000

Y (18) = 1.000 WPP (18) = .000

Y (19) = 1.000 WPP (19) = .000

Y (20) = 1.000 WPP (20) = .000

Y (21) = 1.000 WPP (21) = .000

Y (22) = 1.000 WPP (22) = .000

Y (23) = 1.000 WPP (23) = .000

Y (24) = 1.000 WPP (24) = .000

Y (25) = 1.000 WPP (25) = .000

Y (26) = 1.000 WPP (26) = .000

Y (27) = 1.000 WPP (27) = .000

Y (28) = 1.000 WPP (28) = .000

Y (29) = 1.000 WPP (29) = .000

Y (30) = 1.000 WPP (30) = .000

(870002)

DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR OMS LARC NOHT-644

OMS 81003-87077-4013

RAVL (1) = 1.000 WMAHT(2) = 1.000

SECTION (1) BODY

Y (87) .0000 70.0000

X/L
 .000 .0557 .0794
 .700 .0705 .0705
 .800 .0685 .0685
 .900 .0290 .0219
 1.000 .0219
 1.025 .0195

RAVL (2) = 2.000 WMAHT(1) = .850 MACH = 7.865 PO = 401.225 TO = 1340.003 HO = .060

SECTION (1) BODY

Y (87) .0000 70.0000

X/L
 .000 .0948
 .100 .0900
 .125 .0716
 .150 .0824
 .175 .0575
 .200 .0807
 .250 .0637
 .300 .0590
 .350 .0544
 .375 .0716
 .400 .0687
 .500 .0678
 .600 .0612
 .700 .0563
 .800 .0435
 .900 .0355
 1.000 .0210
 1.025 .0210

RAVL (2) = 2.000 WMAHT(2) = 1.000 MACH = 7.865 PO = 401.225 TO = 1340.003 HO = .060

SECTION (1) BODY

Y (87) .0000 70.0000

X/L
 .000 .0948
 .100 .0761
 .125 .0643
 .150 .0559
 .175 .0515



DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

690002)

CH13 B10C3J8T07F40V5

RA/L (2) = 2.000 HEIGHT (2) = 1.000

SECTION (1) BODY DEPENDENT VARIABLE H/MO

Y (MP) .0000 70.0000

RA/L	
.0070	.0244
.0200	.0570
.0300	.0909
.0400	.1376
.0500	.1840
.0600	.2311
.0700	.2786
.0800	.3266
.0900	.3750
.1000	.4236
1.000	
1.025	.0168

RA/L (3) = 2.000 HEIGHT (1) = .650 WCH = 7.946 PO = 881.221 TO = 1363.661 MO = .075

SECTION (1) BODY DEPENDENT VARIABLE H/MO

Y (MP) .0000 70.0000

RA/L	
.0080	.0380
.0100	.0472
.0125	.0570
.0150	.0680
.0175	.0796
.0200	.0916
.0250	.1080
.0300	.1240
.0350	.1400
.0400	.1560
.0450	.1720
.0500	.1880
.0550	.2040
.0600	.2200
.0650	.2360
.0700	.2520
.0750	.2680
.0800	.2840
.0850	.3000
.0900	.3160
.0950	.3320
1.000	
1.025	.0394

TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

DATE 23 JUL 74

CH13 BID 3.9707748545 (640002)

RAVL (3) = 3.000 MAJ/HT (2) = 1.000 MACH = 7.946 PO = 651.961 TO = 1383.661 HO = .075

DEPENDENT VARIABLE H/HO

SECTION (1) BODY

Y (BP) .0000 70.0000

X/L

.088	.0877
.100	.0781
.125	.0646
.150	.0556
.175	.0508
.200	.0533
.250	.0556
.300	.0511
.350	.0560
.375	.0646
.400	.0598
.500	.0612
.600	.0548
.700	.0538
.800	.0466
.900	.0410
1.000	.0396
1.025	.0354

RAVL (4) = 4.000 MAJ/HT (1) = .850 MACH = 7.980 PO = 857.278 TO = 1373.090 HO = .086

DEPENDENT VARIABLE H/HO

SECTION (1) BODY

Y (BP) .0000 70.0000

X/L

.088	.1040
.100	.0928
.125	.0770
.150	.0666
.175	.0609
.200	.0628
.250	.0653
.300	.0581
.350	.0654
.375	.0759
.400	.0673
.500	.0721
.600	.0651
.700	.0638
.800	.0576
.900	.0540
1.000	.0465
1.025	.0517

TABULATED HEAT TRANSFER DATA FOR OH13 LARC V01-4

DATE 23 JUL 74

(BP0002)

OH13 B10C3-8707F4MSV5

RVAL (4) = 4.000 HMAHT(2) = 1.000 MACH = 7.980 PO = 857.278 TO = 1373.090 HO = .086

DEPENDENT VARIABLE H/HO

SECTION (1) BODY

Y (BP) .0000 70.0000

X/L
 .088 .0930
 .100 .0830
 .125 .0690
 .150 .0597
 .175 .0546
 .200 .0563
 .250 .0585
 .300 .0521
 .350 .0596
 .375 .0679
 .400 .0603
 .500 .0646
 .600 .0584
 .700 .0571
 .800 .0517
 .900 .0484
 1.000 .0417
 1.025 .0463

RVAL (5) = 6.000 HMAHT(1) = .850 MACH = 8.040 PO = 1422.212 TO = 1469.263 HO = .110

DEPENDENT VARIABLE H/HO

SECTION (1) BODY

Y (BP) .0000 70.0000

X/L
 .088 .1125
 .100 .0990
 .125 .0804
 .150 .0682
 .175 .0619
 .200 .0636
 .250 .0664
 .300 .0510
 .350 .0578
 .375 .0772
 .400 .0667
 .500 .0784
 .600 .0785
 .700 .0844
 .800 .0899
 .900 .1141
 1.000 .1018
 1.025 .1111

TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

CH13 B10C9-8707F4KGV5

(BPC0002)

HO = 1489.263

TO = 1422.212

FO = 8.040

MACH = 1.000

RA/L (5) = 6.000

DEPENDENT VARIABLE H/HO

SECTION (1) BODY

Y (BP) .0000 70.0000

X/L

.088	.1007
.100	.0888
.125	.0722
.150	.0613
.175	.0556
.200	.0574
.250	.0597
.300	.0460
.350	.0820
.375	.0652
.400	.0777
.500	.0786
.600	.0704
.700	.0727
.800	.0757
.900	.0805
1.000	.0911
1.025	.0992



TABULATED HEAT TRANSFER DATA FOR OH13 LARC VENT-64

DATE 23 JUL 74

(BPC003) (20 JUL 74)

OH13 810C9.8707F443V5

REFERENCE DATA

SREF = 2690.0000 SQ.FT. WARP = .0000 IN.
 LREF = 474.8000 IN. WARP = .0000 IN.
 BREF = 936.7000 IN. WARP = .0000 IN.
 SCALE = .0059 SCALE

PARAMETRIC DATA

MACH = 8.000 ALPHA = 35.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

RN/L (1) = 1.000 HAW/HT(1) = .850 MACH = 7.774 PO = 183.902 TO = 1246.346 HO = .041
 SECTION (1) BODY
 Y (GF) .0000 75.0000

X/L
 .086 .0921
 .100 .0832
 .125 .0707
 .150 .0622
 .175 .0575
 .200 .0619
 .250 .0661
 .300 .0612
 .350 .0641
 .375 .0716
 .400 .0677
 .500 .0678
 .600 .0686
 .700 .0599
 .800 .0480
 .900 .0387
 1.000 .0263
 1.025 .0258

RN/L (1) = 1.000 HAW/HT(2) = 1.000 MACH = 7.774 PO = 183.902 TO = 1246.346 HO = .041
 SECTION (1) BODY
 Y (GF) .0000 70.0000

X/L
 .086 .0619
 .100 .0740
 .125 .0629
 .150 .0553
 .175 .0513
 .200 .0551
 .250 .0588
 .300 .0545
 .350 .0570
 .375 .0637
 .400 .0710
 .500 .0697



TABULATED HEAT TRANSFER DATA FOR OH13 LARC VDHIT-644

(8F0003)

OH13 B10C3-8707F4K3V5

RVAL (1) = 1.000 HMA/MT(2) = 1.000

SECTION (1) BODY

Y (8F) .0000 70.0000

X/L
 .600 .0587 .0611
 .700 .0524 .0597
 .800 .0428 .0397
 .900 .0345 .0235
 1.000 .0230
 1.025

RVAL (2) = 2.000 HMA/MT(1) = .890 MACH = 7.885 PO = 407.136 TO = 1303.428 HO = .062

SECTION (1) BODY

Y (8F) .0000 70.0000

X/L
 .068 .1043
 .100 .0930
 .125 .0780
 .150 .0683
 .175 .0635
 .200 .0672
 .250 .0723
 .300 .0669
 .350 .0682
 .375 .0778
 .400 .0749
 .500 .0754
 .600 .0730
 .700 .0682
 .800 .0524
 .900 .0444
 1.000 .0339
 1.025 .0299

RVAL (2) = 2.000 HMA/MT(2) = 1.000 MACH = 7.885 PO = 407.136 TO = 1303.428 HO = .062

SECTION (1) BODY

Y (8F) .0000 70.0000

X/L
 .068 .0929
 .100 .0828
 .125 .0696
 .150 .0609
 .175 .0567



TABULATED HEAT TRANSFER DATA FOR OH13 LARC VHT-644

(8F0003)

OH13 B10C3-87D7F4MSV5

RAVL (2) = 2.000 HAWAHT (2) = 1.000

SECTION (1) BODY

Y (6P) .0000 70.0000

X/L	
.200	.0800
.250	.0645
.300	.0597
.350	.0617
.375	.0693
.400	.0779
.500	.0673
.600	.0632
.700	.0609
.800	.0489
.900	.0397
1.000	.0303
1.025	.0267

RAVL (3) = 3.000 HAWAHT (1) = .850 MACH = 7.955 PO = 698.624 TO = 1395.183 HO = .078

SECTION (1) BODY

Y (6P) .0000 70.0000

X/L	
.086	.1065
.100	.0965
.125	.0795
.150	.0679
.175	.0621
.200	.0650
.250	.0707
.300	.0616
.350	.0645
.375	.0773
.400	.0748
.500	.0753
.600	.0729
.700	.0714
.800	.0618
.900	.0629
1.000	.0606
1.025	.0592

INSULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

DATE 23 JUL 74

(SP0003)

CH13 B10C3-8707F4HSVS

PAWL (3) = 3.000 HUAHT(2) = 1.000 MACH = 7.955 PO = 688.624 TO = 1395.183 HO = .078

DEPENDENT VARIABLE H/MO

SECTION (1) BODY

Y(6P) .0000 70.0000

X/L	H/MO
.088	.0870
.100	.0863
.125	.0712
.150	.0808
.175	.0557
.200	.0563
.250	.0634
.300	.0533
.350	.0578
.375	.0882
.400	.0786
.500	.0675
.600	.0664
.700	.0640
.800	.0554
.900	.0564
1.000	.0543
1.025	.0531

PAWL (4) = 4.000 HUAHT(1) = .850 MACH = 7.979 PO = 682.612 TO = 1350.299 HO = .087

DEPENDENT VARIABLE H/MO

SECTION (1) BODY

Y(6P) .0000 70.0000

X/L	H/MO
.088	.1086
.100	.0878
.125	.0808
.150	.0895
.175	.0630
.200	.0659
.250	.0707
.300	.0572
.350	.0809
.375	.0789
.400	.0783
.500	.0886
.600	.0780
.700	.0821
.800	.0893
.900	.0848
1.000	.1037
1.025	.0979



TABULATED HEAT TRANSFER DATA FOR OH13 LARC WENT-644

DATE 23 JUL 74

(8FO003)

OH13 810C3-870774NSVS

RVAL (4) = 4.000 HVAL/HT (2) = 1.000 WACH = 7.979 PO = 882.612 TO = 1360.299 HO = .087

DEPENDENT VARIABLE H/HO

SECTION (1) BODY

Y (3P) .0000 70.0000

X/L

.000 .0977
.100 .0872
.125 .0772
.150 .0621
.175 .0563
.200 .0509
.250 .0632
.300 .0512
.350 .0544
.375 .0704
.400 .0602
.500 .0705
.600 .0734
.700 .0797
.800 .0845
.900 .0824
1.000 .0690
1.025 .0872

RVAL (5) = 6.000 HVAL/HT (1) = .680 WACH = 8.036 PO = 1396.702 TO = 1363.365 HO = .108

DEPENDENT VARIABLE H/HO

SECTION (1) BODY

Y (3P) .0000 70.0000

X/L

.000 .1146
.100 .1013
.125 .0832
.150 .0707
.175 .0644
.200 .0667
.250 .0707
.300 .0469
.350 .0507
.375 .0811
.400 .0654
.500 .1079
.600 .1469
.700 .1761
.800 .1632
.900 .1849
1.000 .1894
1.025 .1533

(BFO003)

CH13 B10C346707F460VS

RA/L (5) = 6.000 MAJMT(2) = 1.000 WACH = 6.058 FO = 1396.702 TO = 1363.365 HO = .108

DEPENDENT VARIABLE N/A/O

SECTION (1) BODY

Y(8P) .0000 TO .0000

XL	
.006	.1080
.100	.0906
.125	.0741
.150	.0630
.175	.0575
.200	.0595
.250	.0530
.300	.0420
.350	.0453
.375	.0721
.400	.0834
.500	.0959
.600	.1250
.700	.1552
.800	.1629
.900	.1625
1.000	.1491
1.025	.1331



TABULATED HEAT TRANSFER DATA FOR OH13 LARC VENT-644

(8F0004) (20 JUL 74)

OH13 810C8-8717F4NSVS WITH 500 DEG PAINT

REFERENCE DATA

REF = 2880.0000 SQ.FT. XREF = .0000 IN.
 LREF = 474.8000 IN. YREF = .0000 IN.
 BREF = 536.7000 IN. ZREF = .0000 IN.
 SCALE = .0059 SCALE

PARAMETRIC DATA

MACH = 8.000 ALPHA = 35.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

PO = 7.950 TO = 670.937 HO = .072

DEPENDENT VARIABLE NAME

SECTION (1) BODY

Y (1) = .0000 TO .0000

X/L
 .000 .1028
 .100 .0913
 .125 .0766
 .150 .0673
 .175 .0630
 .200 .0609
 .250 .0706
 .300 .0569
 .350 .0750
 .400 .0731
 .500 .0762
 .600 .0746
 .700 .0721
 .800 .0619
 .900 .0635
 1.000 .0647
 1.025 .0633

PO = 7.950 MACH = 8.000 TO = 670.937 HO = .072

DEPENDENT VARIABLE NAME

SECTION (1) BODY

Y (1) = .0000 TO .0000

X/L
 .000 .0880
 .100 .0817
 .125 .0696
 .150 .0603
 .175 .0565
 .200 .0600
 .250 .0634
 .300 .0526
 .350 .0829
 .400 .0654
 .500 .0753
 .600 .0635
 .700 .0736

(BFOOD4)

TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-044

CH13 810C3-8707F4NOVS WITH 320 DEG PAINT

RAVL (1) = 3.000 HRAVHT(2) = 1.000

DEPENDENT VARIABLE W/HO

SECTION (1) BODY

Y(2) .0000 70.0000

RAV	.0070	.0058
.770	.0046	
.600	.0555	.0545
.300	.0570	
1.000		1.480
1.025	.0567	



TABLED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

DATE 23 JUL 74

640001) (20 JUL 74)

CH13 810C3487017480V5

REFERENCE DATA
 REF = 3880.0000 82.57. 149P = .0000 IN.
 LREF = 474.0000 IN. 149P = .0000 IN.
 REF = 956.7000 IN. 249P = .0000 IN.
 SCALE = .0059 SCALE
 RVAL (1) = 1.000 HEIGHT (1) = .850 MACH = 7.772 PO = 182.026 TO = 1250.889 HO = .040

PARAMETRIC DATA

MACH = 8.000 ALPHA = .000
 BETA = .000 ELEVON = .000
 RUDDER = .000

DEPENDENT VARIABLE H40

SECTION (1) H40G

ST/S .000 .000 .000 .000

X/C
 .200 .0219 .0405
 .225 .0219 .0405
 .250 .0219 .0405
 .275 .0219 .0405
 .300 .0219 .0405
 .325 .0219 .0405
 .350 .0219 .0405
 .375 .0219 .0405
 .400 .0219 .0405
 .425 .0219 .0405
 .450 .0219 .0405
 .475 .0219 .0405
 .500 .0219 .0405
 .525 .0219 .0405
 .550 .0219 .0405
 .575 .0219 .0405
 .600 .0219 .0405
 .625 .0219 .0405
 .650 .0219 .0405
 .675 .0219 .0405
 .700 .0219 .0405
 .725 .0219 .0405
 .750 .0219 .0405
 .775 .0219 .0405
 .800 .0219 .0405
 .825 .0219 .0405
 .850 .0219 .0405
 .875 .0219 .0405
 .900 .0219 .0405
 .925 .0219 .0405
 .950 .0219 .0405
 .975 .0219 .0405
 .1000 .0219 .0405

RVAL (1) = 1.000 HEIGHT (2) = 1.000 MACH = 7.772 PO = 182.026 TO = 1250.889 HO = .040

DEPENDENT VARIABLE H40

SECTION (1) H40G

ST/S .000 .000 .000 .000

X/C
 .200 .0219 .0405
 .225 .0219 .0405
 .250 .0219 .0405
 .275 .0219 .0405
 .300 .0219 .0405
 .325 .0219 .0405
 .350 .0219 .0405
 .375 .0219 .0405
 .400 .0219 .0405
 .425 .0219 .0405
 .450 .0219 .0405
 .475 .0219 .0405
 .500 .0219 .0405
 .525 .0219 .0405
 .550 .0219 .0405
 .575 .0219 .0405
 .600 .0219 .0405
 .625 .0219 .0405
 .650 .0219 .0405
 .675 .0219 .0405
 .700 .0219 .0405
 .725 .0219 .0405
 .750 .0219 .0405
 .775 .0219 .0405
 .800 .0219 .0405
 .825 .0219 .0405
 .850 .0219 .0405
 .875 .0219 .0405
 .900 .0219 .0405
 .925 .0219 .0405
 .950 .0219 .0405
 .975 .0219 .0405
 .1000 .0219 .0405

DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

CH13 SUBC3-87077-80WS
 64PODD1)
 RVAL (2) = 2.000 WMAINT(1) = .850 WACH = 7.865 PO = 401.847 TO = 1312.202 HO = .061

DEPENDENT VARIABLE WAO

SECTION (1)WANG

ST/8 .4000 .8000 .8000

X/C	WAO
.200	.0432
.225	.0229
.250	.0256
.300	.0330
.400	.0402
.500	.0357
.600	.0275
.700	.0166
.800	.0149
.875	.0137

RVAL (2) = 2.000 WMAINT(2) = 1.000 WACH = 7.865 PO = 401.847 TO = 1312.202 HO = .061

DEPENDENT VARIABLE WAO

SECTION (1)WANG

ST/8 .4000 .8000 .8000

X/C	WAO
.200	.0267
.225	.0226
.250	.0250
.300	.0215
.400	.0184
.500	.0232
.600	.0240
.700	.0194
.800	.0134
.875	.0165

RVAL (3) = 3.000 WMAINT(1) = .850 WACH = 7.945 PO = 646.050 TO = 1404.166 HO = .077

DEPENDENT VARIABLE WAO

SECTION (1)WANG

ST/8 .4000 .8000 .8000

X/C	WAO
.200	.0497
.225	.0239
.250	.0263
.300	.0246
.400	.0209
.500	.0267
.600	.0185



TABULATED HEAT TRANSFER DATA FOR CHS LANC VENT-844

6-P0001)

DATE 23 JUL 74

CHS B1003-STD7F46V5

RVL (3) = 3.000 HEIGHT (1) = .850

SECTION (1) NAME

ST/B .4000 .6000 .8000

W/C

.700 .0101 .0150 .0250
.800 .0098 .0160 .0160
.900 .0142 .0142 .0142
.975 .0099 .0099 .0099

RVL (3) = 3.000 HEIGHT (2) = 1.000 MCH = 7.945 PO = 646.000 TO = 1404.168 HO = .077

SECTION (1) NAME

ST/B .4000 .6000 .8000

W/C

.800 .0215 .0405
.825 .0257 .0469
.850 .0297 .0499
.875 .0321 .0529
.900 .0346 .0570
.925 .0370 .0611
.950 .0394 .0652
.975 .0418 .0693
1.000 .0442 .0734
1.025 .0466 .0775
1.050 .0490 .0816
1.075 .0514 .0857
1.100 .0538 .0898
1.125 .0562 .0939
1.150 .0586 .0980
1.175 .0610 .1021
1.200 .0634 .1062
1.225 .0658 .1103
1.250 .0682 .1144
1.275 .0706 .1185
1.300 .0730 .1226
1.325 .0754 .1267
1.350 .0778 .1308
1.375 .0802 .1349
1.400 .0826 .1390
1.425 .0850 .1431
1.450 .0874 .1472
1.475 .0898 .1513
1.500 .0922 .1554
1.525 .0946 .1595
1.550 .0970 .1636
1.575 .0994 .1677
1.600 .1018 .1718
1.625 .1042 .1759
1.650 .1066 .1800
1.675 .1090 .1841
1.700 .1114 .1882
1.725 .1138 .1923
1.750 .1162 .1964
1.775 .1186 .2005
1.800 .1210 .2046
1.825 .1234 .2087
1.850 .1258 .2128
1.875 .1282 .2169
1.900 .1306 .2210
1.925 .1330 .2251
1.950 .1354 .2292
1.975 .1378 .2333
2.000 .1402 .2374
2.025 .1426 .2415
2.050 .1450 .2456
2.075 .1474 .2497
2.100 .1498 .2538
2.125 .1522 .2579
2.150 .1546 .2620
2.175 .1570 .2661
2.200 .1594 .2702
2.225 .1618 .2743
2.250 .1642 .2784
2.275 .1666 .2825
2.300 .1690 .2866
2.325 .1714 .2907
2.350 .1738 .2948
2.375 .1762 .2989
2.400 .1786 .3030
2.425 .1810 .3071
2.450 .1834 .3112
2.475 .1858 .3153
2.500 .1882 .3194
2.525 .1906 .3235
2.550 .1930 .3276
2.575 .1954 .3317
2.600 .1978 .3358
2.625 .2002 .3399
2.650 .2026 .3440
2.675 .2050 .3481
2.700 .2074 .3522
2.725 .2098 .3563
2.750 .2122 .3604
2.775 .2146 .3645
2.800 .2170 .3686
2.825 .2194 .3727
2.850 .2218 .3768
2.875 .2242 .3809
2.900 .2266 .3850
2.925 .2290 .3891
2.950 .2314 .3932
2.975 .2338 .3973
3.000 .2362 .4014
3.025 .2386 .4055
3.050 .2410 .4096
3.075 .2434 .4137
3.100 .2458 .4178
3.125 .2482 .4219
3.150 .2506 .4260
3.175 .2530 .4301
3.200 .2554 .4342
3.225 .2578 .4383
3.250 .2602 .4424
3.275 .2626 .4465
3.300 .2650 .4506
3.325 .2674 .4547
3.350 .2698 .4588
3.375 .2722 .4629
3.400 .2746 .4670
3.425 .2770 .4711
3.450 .2794 .4752
3.475 .2818 .4793
3.500 .2842 .4834
3.525 .2866 .4875
3.550 .2890 .4916
3.575 .2914 .4957
3.600 .2938 .5000
3.625 .2962 .5041
3.650 .2986 .5082
3.675 .3010 .5123
3.700 .3034 .5164
3.725 .3058 .5205
3.750 .3082 .5246
3.775 .3106 .5287
3.800 .3130 .5328
3.825 .3154 .5369
3.850 .3178 .5410
3.875 .3202 .5451
3.900 .3226 .5492
3.925 .3250 .5533
3.950 .3274 .5574
3.975 .3298 .5615
4.000 .3322 .5656
4.025 .3346 .5697
4.050 .3370 .5738
4.075 .3394 .5779
4.100 .3418 .5820
4.125 .3442 .5861
4.150 .3466 .5902
4.175 .3490 .5943
4.200 .3514 .5984
4.225 .3538 .6025
4.250 .3562 .6066
4.275 .3586 .6107
4.300 .3610 .6148
4.325 .3634 .6189
4.350 .3658 .6230
4.375 .3682 .6271
4.400 .3706 .6312
4.425 .3730 .6353
4.450 .3754 .6394
4.475 .3778 .6435
4.500 .3802 .6476
4.525 .3826 .6517
4.550 .3850 .6558
4.575 .3874 .6599
4.600 .3898 .6640
4.625 .3922 .6681
4.650 .3946 .6722
4.675 .3970 .6763
4.700 .3994 .6804
4.725 .4018 .6845
4.750 .4042 .6886
4.775 .4066 .6927
4.800 .4090 .6968
4.825 .4114 .7009
4.850 .4138 .7050
4.875 .4162 .7091
4.900 .4186 .7132
4.925 .4210 .7173
4.950 .4234 .7214
4.975 .4258 .7255
5.000 .4282 .7296
5.025 .4306 .7337
5.050 .4330 .7378
5.075 .4354 .7419
5.100 .4378 .7460
5.125 .4402 .7501
5.150 .4426 .7542
5.175 .4450 .7583
5.200 .4474 .7624
5.225 .4498 .7665
5.250 .4522 .7706
5.275 .4546 .7747
5.300 .4570 .7788
5.325 .4594 .7829
5.350 .4618 .7870
5.375 .4642 .7911
5.400 .4666 .7952
5.425 .4690 .7993
5.450 .4714 .8034
5.475 .4738 .8075
5.500 .4762 .8116
5.525 .4786 .8157
5.550 .4810 .8198
5.575 .4834 .8239
5.600 .4858 .8280
5.625 .4882 .8321
5.650 .4906 .8362
5.675 .4930 .8403
5.700 .4954 .8444
5.725 .4978 .8485
5.750 .5002 .8526
5.775 .5026 .8567
5.800 .5050 .8608
5.825 .5074 .8649
5.850 .5098 .8690
5.875 .5122 .8731
5.900 .5146 .8772
5.925 .5170 .8813
5.950 .5194 .8854
5.975 .5218 .8895
6.000 .5242 .8936
6.025 .5266 .8977
6.050 .5290 .9018
6.075 .5314 .9059
6.100 .5338 .9100
6.125 .5362 .9141
6.150 .5386 .9182
6.175 .5410 .9223
6.200 .5434 .9264
6.225 .5458 .9305
6.250 .5482 .9346
6.275 .5506 .9387
6.300 .5530 .9428
6.325 .5554 .9469
6.350 .5578 .9510
6.375 .5602 .9551
6.400 .5626 .9592
6.425 .5650 .9633
6.450 .5674 .9674
6.475 .5698 .9715
6.500 .5722 .9756
6.525 .5746 .9797
6.550 .5770 .9838
6.575 .5794 .9879
6.600 .5818 .9920
6.625 .5842 .9961
6.650 .5866 .1002
6.675 .5890 .1003
6.700 .5914 .1004
6.725 .5938 .1005
6.750 .5962 .1006
6.775 .5986 .1007
6.800 .6010 .1008
6.825 .6034 .1009
6.850 .6058 .1010
6.875 .6082 .1011
6.900 .6106 .1012
6.925 .6130 .1013
6.950 .6154 .1014
6.975 .6178 .1015
7.000 .6202 .1016
7.025 .6226 .1017
7.050 .6250 .1018
7.075 .6274 .1019
7.100 .6298 .1020
7.125 .6322 .1021
7.150 .6346 .1022
7.175 .6370 .1023
7.200 .6394 .1024
7.225 .6418 .1025
7.250 .6442 .1026
7.275 .6466 .1027
7.300 .6490 .1028
7.325 .6514 .1029
7.350 .6538 .1030
7.375 .6562 .1031
7.400 .6586 .1032
7.425 .6610 .1033
7.450 .6634 .1034
7.475 .6658 .1035
7.500 .6682 .1036
7.525 .6706 .1037
7.550 .6730 .1038
7.575 .6754 .1039
7.600 .6778 .1040
7.625 .6802 .1041
7.650 .6826 .1042
7.675 .6850 .1043
7.700 .6874 .1044
7.725 .6898 .1045
7.750 .6922 .1046
7.775 .6946 .1047
7.800 .6970 .1048
7.825 .6994 .1049
7.850 .7018 .1050
7.875 .7042 .1051
7.900 .7066 .1052
7.925 .7090 .1053
7.950 .7114 .1054
7.975 .7138 .1055
8.000 .7162 .1056
8.025 .7186 .1057
8.050 .7210 .1058
8.075 .7234 .1059
8.100 .7258 .1060
8.125 .7282 .1061
8.150 .7306 .1062
8.175 .7330 .1063
8.200 .7354 .1064
8.225 .7378 .1065
8.250 .7402 .1066
8.275 .7426 .1067
8.300 .7450 .1068
8.325 .7474 .1069
8.350 .7498 .1070
8.375 .7522 .1071
8.400 .7546 .1072
8.425 .7570 .1073
8.450 .7594 .1074
8.475 .7618 .1075
8.500 .7642 .1076
8.525 .7666 .1077
8.550 .7690 .1078
8.575 .7714 .1079
8.600 .7738 .1080
8.625 .7762 .1081
8.650 .7786 .1082
8.675 .7810 .1083
8.700 .7834 .1084
8.725 .7858 .1085
8.750 .7882 .1086
8.775 .7906 .1087
8.800 .7930 .1088
8.825 .7954 .1089
8.850 .7978 .1090
8.875 .8002 .1091
8.900 .8026 .1092
8.925 .8050 .1093
8.950 .8074 .1094
8.975 .8098 .1095
9.000 .8122 .1096
9.025 .8146 .1097
9.050 .8170 .1098
9.075 .8194 .1099
9.100 .8218 .1100
9.125 .8242 .1101
9.150 .8266 .1102
9.175 .8290 .1103
9.200 .8314 .1104
9.225 .8338 .1105
9.250 .8362 .1106
9.275 .8386 .1107
9.300 .8410 .1108
9.325 .8434 .1109
9.350 .8458 .1110
9.375 .8482 .1111
9.400 .8506 .1112
9.425 .8530 .1113
9.450 .8554 .1114
9.475 .8578 .1115
9.500 .8602 .1116
9.525 .8626 .1117
9.550 .8650 .1118
9.575 .8674 .1119
9.600 .8698 .1120
9.625 .8722 .1121
9.650 .8746 .1122
9.675 .8770 .1123
9.700 .8794 .1124
9.725 .8818 .1125
9.750 .8842 .1126
9.775 .8866 .1127
9.800 .8890 .1128
9.825 .8914 .1129
9.850 .8938 .1130
9.875 .8962 .1131
9.900 .8986 .1132
9.925 .9010 .1133
9.950 .9034 .1134
9.975 .9058 .1135
10.000 .9082 .1136
10.025 .9106 .1137
10.050 .9130 .1138
10.075 .9154 .1139
10.100 .9178 .1140
10.125 .9202 .1141
10.150 .9226 .1142
10.175 .9250 .1143
10.200 .9274 .1144
10.225 .9298 .1145
10.250 .9322 .1146
10.275 .9346 .1147
10.300 .9370 .1148
10.325 .9394 .1149
10.350 .9418 .1150
10.375 .9442 .1151
10.400 .9466 .1152
10.425 .9490 .1153
10.450 .9514 .1154
10.475 .9538 .1155
10.500 .9562 .1156
10.525 .9586 .1157
10.550 .9610 .1158
10.575 .9634 .1159
10.600 .9658 .1160
10.625 .9682 .1161
10.650 .9706 .1162
10.675 .9730 .1163
10.700 .9754 .1164
10.725 .9778 .1165
10.750 .9802 .1166
10.775 .9826 .1167
10.800 .9850 .1168
10.825 .9874 .1169
10.850 .9898 .1170
10.875 .9922 .1171
10.900 .9946 .1172
10.925 .9970 .1173
10.950 .9994 .1174
11.000 1.0018 .1175
11.025 1.0042 .1176
11.050 1.0066 .1177
11.075 1.0090 .1178
11.100 1.0114 .1179
11.125 1.0138 .1180
11.150 1.0162 .1181
11.175 1.0186 .1182
11.200 1.0210 .1183
11.225 1.0234 .1184
11.250 1.0258 .1185
11.275 1.0282 .1186
11.300 1.0306 .1187
11.325 1.0330 .1188
11.350 1.0354 .1189
11.375 1.0378 .1190
11.400 1.0402 .1191
11.425 1.0426 .1192
11.450 1.0450 .1193
11.475 1.0474 .1194
11.500 1.0498 .1195
11.525 1.0522 .1196
11.550 1.0546 .1197
11.575 1.0570 .1198
11.600 1.0594 .1199
11.625 1.0618 .1200
11.650 1.0642 .1201
11.675 1.0666 .1202
11.700 1.0690 .1203
11.725 1.0714 .1204
11.750 1.0738 .1205
11.775 1.0762 .1206
11.800 1.0786 .1207
11.825 1.0810 .1208
11.850 1.0834 .1209
11.875 1.0858 .1210
11.900 1.0882 .1211
11.925 1.0906 .1212
11.950 1.0930 .1213
11.975 1.0954 .1214
12.000 1.0978 .1215
12.025 1.1002 .1216
12.050 1.1026 .1217
12.075 1.1050 .1218
12.100 1.1074 .1219
12.125 1.1098 .1220
12.150 1.1122 .1221
12.175 1.1146 .1222
12.200 1.1170 .1223
12.225 1.1194 .1224
12.250 1.1218 .1225
12.275 1.1242 .1226
12.300 1.1266 .1227
12.325 1.1290 .1228
12.350 1.1314 .1229
12.375 1.1338 .1230
12.400 1.1362 .1231
12.425 1.1386 .1232
12.450 1.1410 .1233
12.475 1.1434 .1234
12.500 1.1458 .1235
12.525 1.1482 .1236
12.550 1.1506 .1237
12.575 1.1530 .1238
12.600 1.1554 .1239
12.625 1.1578 .1240
12.650 1.1602 .1241
12.675 1.1626 .1242
12.700 1.1650 .1243
12.725 1.1674 .1244
12.750 1.1698 .1245
12.775 1.1722 .1246
12.800 1.1746 .1247
12.825 1.1770 .1248
12.850 1.1794 .1249
12.875 1.1818 .1250
12.900 1.1842 .1251
12.925 1.1866 .1252
12.950 1.1890 .1253
12.975 1.1914 .1254
13.000 1.1938 .1255
13.025 1.1962 .1256
13.050 1.1986 .1257
13.075 1.2010 .1258
13.100 1.2034 .1259
13.125 1.2058 .1260
13.150 1.2082 .1261
13.175 1.2106 .1262
13.200 1.2130 .1263
13.225 1.2154 .1264
13.250 1.2178 .1265
13.275 1.2202 .1266
13.300 1.2226 .1267
13.325 1.2250 .1268
13.350 1.2274 .1269
13.375 1.2298 .1270
13.400 1.2322 .1271
13.425 1.2346 .1272
13.450 1.2370 .1273
13.475 1.2394 .1274
13.500 1.2418 .1275
13.525 1.2442 .1276
13.550 1.2466 .1277
13.575 1.2490 .1278
13.600 1.2514 .1279
13.625 1.2538 .1280
13.650 1.2562 .1281
13.675 1.2586 .1282
13.700 1.2610 .1283
13.725 1.2634 .1284
13.750 1.2658 .1285
13.775 1.2682 .1286
13.800 1.2706 .1287
13.825 1.2730 .1288
13.850 1.2754 .1289
13.875 1.2778 .1290
13.900 1.2802 .1291
13.925 1.2826 .1292
13.950 1.2850 .1293
13.975 1.2874 .1294
14.000 1.2898 .1295
14.025 1.2922 .1296
14.050 1.2946 .1297
14.075 1.2970 .1298
14.100 1.2994 .1299
14.125 1.3018 .1300
14.150 1.3042 .1301
14.175 1.3066 .1302
14.200 1.3090 .1303
14.225 1.3114 .1304
14.250 1.3138 .1305
14.275 1.3162 .1306
14.300 1.3186 .1307
14.325 1.3210 .1308
14.350 1.3234 .1309
14.375 1.3258 .1310
14.400 1.3282 .1311
14.425 1.3306 .1312
14.450 1.3330 .1313
14.475 1.3354 .1314
14.500 1.3378 .1315
14.525 1.3402 .1316
14.550 1.3426 .1317
14.575 1.3450 .1318
14.600 1.3474 .1319
14.625 1.3498 .1320
14.650 1.3522 .1321
14.675 1.3546 .1322
14.700 1.3570 .1323
14.725 1.3594 .1324
14.750 1.3618 .1325
14.775 1.3642 .1326
14.800 1.3666 .1327
14.825 1.3690 .1328
14.850 1.3714 .1329
14.875 1.3738 .1330
14.900 1.3762 .1331
14.925 1.3786 .1332
14.950 1.3810 .1333
14.975 1.3834 .1334
15.000 1.3858 .1335
15.025 1.3882 .1336
15.050 1.3906 .1337
15.075 1.3930 .1338
15.100 1.3954 .1339
15.125 1.3978 .1340
15.150 1.4002 .1341
15.175 1.4026 .1342
15.200 1.4050 .1343
15.225 1.4074 .1344
15.250 1.4098 .1345
15.275 1.4122 .1346
15.300 1.4146 .1347
15.325 1.4170 .1348
15.350 1.4194 .1349
15.375 1.4218 .1350
15.400 1.4242 .1351
15.425 1.4266 .1352
15.450 1.4290 .1353
15.475 1.4314 .1354
15.500 1.4338 .1355
15.525 1.4362 .1356
15.550 1.4386 .1357
15.575 1.4410 .1358
15.600 1.4434 .1359
15.625 1.4458 .1360
15.650 1.4482 .1361
15.675 1.4506 .1362
15.700 1.4530 .1363
15.725 1.4554 .1364
15.750 1.4578 .1365
15.775 1.4602 .1366
15.800 1.4626 .1367
15.825 1.4650 .1368
15.850 1.4674 .1369
15.875 1.4698 .1370
15.900 1.4722 .1371
15.925 1.4746 .1372
15.950 1.4770 .1373
15.975 1.4794 .1374
16.000 1.4818 .1375
16.025 1.4842 .1376
16.050 1.4866 .1377
16.075 1.4890 .1378
16.100 1.4914 .1379
16.125 1.4938 .1380
16.150 1.4962 .1381
16.175 1.4986 .1382
16.200 1.5010 .1383
16.225 1.5034 .1384
16.250 1.5058 .1385
16.275 1.5082 .1386
16.300 1.5106 .1387
16.325 1.5130 .1388
16.350 1.5154 .1389
16.375 1.5178 .1390
16.400 1.5202 .1391
16.425 1.5226 .1392
16.450 1.5250 .1393
16.475 1.5274 .1394
16.500 1.5298 .1395
16.525 1.5322 .1396
16.550 1.5346 .1397
16.575 1.5370 .1398
16.600 1.5394 .1399
16.625 1.5418 .1400
16.650 1.5442 .1401
16.675 1.5466 .1402
16.700 1.5490 .1403
16.725 1.5514 .1404
16.750 1.5538 .1405
16.775 1.

DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR OH13 LARC VENT-644

OH13 810C3A8707F4NSV5 (APCD001)

RVAL (4) = 4.000 HWA/HT (2) = 1.000 MACH = 7.980 PO = 855.101 TO = 1374.570 HO = .087

DEPENDENT VARIABLE H/HO

SECTION (1) MING

ZY/B .4000 .6000 .8000

X/C

.200 .0411
.225 .0215
.250 .0240 .0489
.300 .0222 .0430
.400 .0188 .0277 .0366
.500 .0150 .0254 .0299
.600 .0107 .0204 .0255
.700 .0088 .0136 .0206
.800 .0076 .0160 .0180
.850 .0090 .0126
.875

RVAL (5) = 6.000 HWA/HT (1) = .850 MACH = 3.040 PO = 1411.324 TO = 1421.927 HO = .108

DEPENDENT VARIABLE H/HO

SECTION (1) MING

ZY/B .4000 .6000 .8000

X/C

.200 .0485
.225 .0259
.250 .0287 .0569
.300 .0267 .0500
.400 .0224 .0339 .0432
.500 .0180 .0316 .0361
.600 .0132 .0262 .0314
.700 .0112 .0175 .0256
.800 .0088 .0198 .0198
.850 .0112 .0157
.875

RVAL (5) = 6.000 HWA/HT (2) = 1.000 MACH = 8.040 PO = 1411.324 TO = 1421.927 HO = .108

DEPENDENT VARIABLE H/HO

SECTION (1) MING

ZY/B .4000 .6000 .8000

X/C

.200 .0406
.225 .0233
.250 .0259 .0512
.300 .0241 .0339 .0450
.400 .0202 .0305 .0389
.500 .0163 .0285 .0325
.600 .0120 .0236 .0282



04P0001)

TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

CH13 B10C3-87D7F4NSV5

RA/L (5) = 6.000 MAW/HT (2) = 1.000

SECTION (1) WING DEPENDENT VARIABLE MU/HO

2Y/8 .4000 .6000 .8000

X/C	.0101	.0156	.0231
.700	.0089	.0179	.0142
.800			
.850			
.875			



TABULATED HEAT TRANSFER DATA FOR OH13 LARC VDHIT-644

DATE 23 JUL 74

(AP0002) (20 JUL 74)

OH13 810C9-8707F4N3V5

REFERENCE DATA

REF = 2680.0000 SQ.FT. XREF = .0000 IN.
 LREF = 474.0000 IN. YREF = .0000 IN.
 BREF = 936.7000 IN. ZREF = .0000 IN.
 SCALE = .0059 SCALE

PARAMETRIC DATA

MACH = 8.000 ALPHA = 30.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

HO = 1306.705

TO = 189.790

PO = 7.778

MACH = 7.778

HO = 1306.705

TO = 189.790

PO = 7.778

MACH = 7.778

HO = 1306.705

TO = 189.790

DEPENDENT VARIABLE H/HO

SECTION (1) MING

27/8 .4000 .6000 .8000

X/C

.200 .1315
 .225 .0734
 .250 .0832
 .300 .0796
 .400 .0745
 .500 .0682
 .600 .0560
 .700 .0538
 .800 .0519
 .850 .0476
 .875 .0471

DEPENDENT VARIABLE H/HO

SECTION (1) MING

27/8 .4000 .6000 .8000

X/C

.200 .1172
 .225 .0656
 .250 .0744
 .300 .0712
 .400 .0666
 .500 .0611
 .600 .0502
 .700 .0462
 .800 .0465
 .850 .0422
 .875 .0427



TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

DATE 23 JUL 74

(AFO002)

CH13 810C3W8707F46V5

RNVL (2) = 2.000 HAW/HT (1) = .890 MACH = 7.883 PO = 401.225 TO = 1340.003 HO = .060

DEPENDENT VARIABLE H/HO

SECTION (1) MING

2Y/B .4000 .6000 .8000

X/C .1336

.200 .0743 .1287
 .225 .0837 .1179
 .250 .0799 .1057
 .300 .0758 .0919
 .400 .0703 .0828
 .500 .0627 .0741
 .600 .0520 .0647
 .700 .0463 .0528
 .800 .0475 .0436
 .850 .0432
 .875 .0482

RNVL (2) = 2.000 HAW/HT (2) = 1.000 MACH = 7.883 PO = 401.225 TO = 1340.003 HO = .060

DEPENDENT VARIABLE H/HO

SECTION (1) MING

2Y/B .4000 .6000 .8000

X/C .1190

.200 .0665 .1149
 .225 .0748 .1052
 .250 .0714 .0944
 .300 .0679 .0822
 .400 .0627 .0741
 .500 .0520 .0647
 .600 .0463 .0528
 .700 .0475 .0436
 .800 .0432
 .850 .0482
 .875 .0432

RNVL (3) = 3.000 HAW/HT (1) = .890 MACH = 7.946 PO = 651.961 TO = 1363.661 HO = .073

DEPENDENT VARIABLE H/HO

SECTION (1) MING

2Y/B .4000 .6000 .8000

X/C .1398

.200 .0740 .1357
 .225 .0843 .1254
 .250 .0806 .1161
 .300 .0763 .1012
 .400 .0709 .1012
 .500 .0599 .1038
 .600 .0599 .1038

(AF00002)

OH13 B10C3/8707F4HSVS

RVAL (3) = 3.000 HMA/HT(1) = .850

SECTION (1) MING DEPENDENT VARIABLE H/HO

2Y/B .4000 .6000 .8000

X/C

.700	.0569	.0753	.0764
.800	.0568		.0622
.850			.0517
.875		.0504	

RVAL (3) = 3.000 HMA/HT(2) = 1.000 MACH = 7.946 PO = 651.961 TO = 1383.661 HO = .075

SECTION (1) MING DEPENDENT VARIABLE H/HO

2Y/B .4000 .6000 .8000

X/C

.200		.1244
.225	.0653	
.250	.0755	.1211
.300	.0722	.1119
.400	.0686	.1037
.500	.0635	.0905
.600	.0537	.0807
.700	.0511	.0685
.800	.0510	.0558
.850		.0464
.875		.0453

RVAL (4) = 4.000 HMA/HT(1) = .850

MACH = 7.980 PO = 857.278 TO = 1373.090 HO = .086

SECTION (1) MING DEPENDENT VARIABLE H/HO

2Y/B .4000 .6000 .8000

X/C

.200		.1508
.225	.0786	
.250	.0918	.1551
.300	.0909	.1354
.400	.0948	.1382
.500	.1002	.1319
.600	.0916	.1296
.700	.0962	.0945
.800	.0885	.0729
.850		.0626
.875		.0639



TABULATED HEAT TRANSFER DATA FOR OH13 LARC VORT-644

DATE 23 JUL 74

(MPO002)

OH13 810C3-8707F4HSVS

RVL (4) = 4.000 HWA/HT (2) = 1.000 MACH = 7.980 PO = 857.278 TO = 1373.090 HO = .086

DEPENDENT VARIABLE H/HO

SECTION (1) MING

ZY/B .4000 .6000 .8000

X/C	.200	.225	.250	.300	.400	.500	.600	.700	.800	.850	.875
	.1339	.0703	.0820	.0807	.1204	.0846	.1229	.1173	.1013	.0926	.0812
					.1381	.1246	.1176	.1153	.0845	.0652	.0561
											.0573

RVL (5) = 6.000 HWA/HT (1) = .850 MACH = 8.040 PO = 1422.212 TO = 1489.263 HO = .110

DEPENDENT VARIABLE H/HO

SECTION (1) MING

ZY/B .4000 .6000 .8000

X/C	.200	.225	.250	.300	.400	.500	.600	.700	.800	.850	.875
	.1915	.0854	.1100	.1189	.2136	.2556	.2728	.2598	.1644	.1763	.1451
					.2178	.2044	.2178	.2572	.2235	.1763	.1451
											.1098

RVL (5) = 6.000 HWA/HT (2) = 1.000 MACH = 8.040 PO = 1422.212 TO = 1489.263 HO = .110

DEPENDENT VARIABLE H/HO

SECTION (1) MING

ZY/B .4000 .6000 .8000

X/C	.200	.225	.250	.300	.400	.500	.600
	.1680	.0765	.0982	.1058	.1876	.2234	.2385
					.1926	.1811	.1928
							.2269
							.2286

DATE 23 JUL 74

TABLATED HEAT TRANSFER DATA FOR CH13 LARC WHT-644

PAGE 30

(NFO002)

CH13 810C9A8707F4MSVS

RAVL (5) = 6.000 HAW/HT (2) = 1.000

DEPENDENT VARIABLE H/HO

SECTION (1) WING

ZY/B .4000 .6000 .8000

X/C

.700 .1251 .1459 .1969
.800 .1194 .1562 .1962
.850 .1291 .1291 .1291
.875 .0980 .0980 .0980



DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

(MFOODS) (20 JUL 74)

CH13 B10C3A8707F4MSVS

REFERENCE DATA

REF = 2690.0000 54.FT. XREF = .0000
 LREF = 474.8000 IN. YREF = .0000 IN.
 BREF = 936.7000 IN. ZREF = .0000 IN.
 SCALE = .0059 SCALE

PARAMETRIC DATA

MACH = 8.000 ALPHA = 35.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

FO = 1246.346 HO = .041

RAVL (1) = 1.000 HAWAIT (1) = .850

DEPENDENT VARIABLE HAWO

SECTION (1) MING

21/8 .4000 .6000 .8000

X/C
 .200 .1362
 .225 .0668
 .250 .0772
 .300 .0742
 .400 .0716
 .500 .0661
 .600 .0541
 .700 .0513
 .800 .0516
 .850 .0499
 .875 .0469

RAVL (1) = 1.000 HAWAIT (2) = 1.000

MACH = 7.774 FO = 163.902 TO = 1246.346 HO = .041

DEPENDENT VARIABLE HAWO

SECTION (1) MING

21/8 .4000 .6000 .8000

X/C
 .200 .1207
 .225 .0584
 .250 .0697
 .300 .0660
 .400 .0637
 .500 .0588
 .600 .0482
 .700 .0457
 .800 .0460
 .850 .0436
 .875 .0465

TABULATED HEAT TRANSFER DATA FOR OH13 LARC VDH-644

OH13 BLOCKS 8707FANSVS (AF0003)

RVAL (2) = 2.000 MAWNT(1) = .850 MACH = 7.885 PO = 407.136 TO = 1303.428 HO = .062

DEPENDENT VARIABLE W/HO

SECTION (1)M/G

ZY/B .4000 .6000 .8000

X/C	.200	.400	.600	.800
	.1497			
	.0697			
	.061			
	.1370			
	.1264			
	.1143			
	.1191			
	.1024			
	.0857			
	.0823			
	.0575			
	.0682			
	.0571			
	.0545			

RVAL (2) = 2.000 MAWNT(2) = 1.000 MACH = 7.885 PO = 407.136 TO = 1303.428 HO = .062

DEPENDENT VARIABLE W/HO

SECTION (1)M/G

ZY/B .4000 .6000 .8000

X/C	.200	.400	.600	.800
	.1328			
	.0622			
	.0716			
	.1156			
	.1124			
	.1142			
	.0912			
	.1056			
	.0940			
	.0835			
	.0734			
	.0609			
	.0510			
	.0487			

RVAL (3) = 3.000 MAWNT(1) = .850 MACH = 7.955 PO = 698.624 TO = 1395.163 HO = .078

DEPENDENT VARIABLE W/HO

SECTION (1)M/G

ZY/B .4000 .6000 .8000

X/C	.200	.400	.600	.800
	.1579			
	.0724			
	.1410			
	.1293			
	.1382			
	.1181			
	.1050			
	.1301			
	.1241			
	.0959			



TABULATED HEAT TRANSFER DATA FOR OH13 LARC MONT-644

(AF00003)

OH13 BIDC5870774NSVS

DATE 25 JUL 74

RVAL (3) = 3.000 MAJANT(1) = .890

SECTION (1) NAME DEPENDENT VARIABLE NAME

TY/B .4000 .6000 .8000

K/C

.700 .0836 .0956 .0846
.800 .0614 .0698 .0688
.900 .0500 .0584 .0584
.975 .0674

RVAL (3) = 3.000 MAJANT(2) = 1.000 MACH = 7.955 PO = 688.624 TO = 1395.183 HO = .078

SECTION (1) NAME DEPENDENT VARIABLE NAME

TY/B .4000 .6000 .8000

K/C

.800 .1400
.825 .0848
.850 .0787
.875 .0804
.900 .1229
.925 .1154
.950 .1236
.975 .1054
.990 .0859
.995 .1199
.998 .0658
.999 .1107
.999 .0758
.999 .0657
.999 .0817
.999 .0325
.999 .0804

RVAL (4) = 4.000 MAJANT(1) = .890

MACH = 7.979 PO = 882.612 TO = 1360.299 HO = .067

SECTION (1) NAME DEPENDENT VARIABLE NAME

TY/B .4000 .6000 .8000

K/C

.800 .1679
.825 .0774
.850 .0848
.875 .1451
.900 .1512
.925 .1324
.950 .1222
.975 .1554
.990 .1140
.995 .1502
.998 .1432
.999 .1050
.999 .1117
.999 .1001
.999 .0853
.999 .0795
.999 .0788

DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR CH13 LARC V01T-644

CH13 810C349707F4MSVS 64FO003)

RAVL (4) = 4.000 MAWMT (2) = 1.000 WACH = 7.979 PO = 852.612 TO = 1360.299 HO = .087

DEPENDENT VARIABLE H/HO

SECTION (1) H/HG

2Y/B .4000 .6000 .8000

X/C

.200	.1485
.225	.0891
.250	.0945
.300	.0677
.400	.0979
.500	.1016
.600	.0925
.700	.0974
.800	.0974
.850	.0744
.875	.0710
	.0704

RAVL (5) = 6.000 MAWMT (1) = .680 WACH = 8.036 PO = 1356.702 TO = 1363.365 HO = .108

DEPENDENT VARIABLE H/HO

SECTION (1) H/HG

2Y/B .4000 .6000 .8000

X/C

.200	.2274
.225	.1309
.250	.1765
.300	.1657
.400	.2012
.500	.2074
.600	.1921
.700	.1980
.800	.1955
.850	.1676
.875	.1546
	.1332

RAVL (5) = 6.000 MAWMT (2) = 1.000 WACH = 8.036 PO = 1356.702 TO = 1363.365 HO = .108

DEPENDENT VARIABLE H/HO

SECTION (1) H/HG

2Y/B .4000 .6000 .8000

X/C

.200	.1979
.225	.1157
.250	.1592
.300	.1627
.400	.1767
.500	.1622
.600	.1669
	.2422
	.1630



DATE 23 JUL 74

TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

PAGE 35

CH13 BIDC88707FANSYS

(AP0003)

RAVL (5) = 6.000 HMAVAT (2) = 1.000

SECTION (1) IN/IN DEPENDENT VARIABLE H/HO

21/6 .000 .000 .000

X/C
.700 .1736 .1712 .1797
.000 .1716 .1472 .1472
.030 .1302 .1302
.075 .1176 .1176



TABULATED HEAT TRANSFER DATA FOR OH13 LARC VDHIT-644

DATE 23 JUL 74

(CFO001) (20 JUL 74)

OH13 BIDC9.87D7F4HSVS

REFERENCE DATA				PARAMETRIC DATA			
SREF = 2690.0000 SQ.FT.	WARP = .0000	IN.		MACH = 8.000	ALPHA = .000		
LREF = 474.8000 IN.	WARP = .0000	IN.		BETA = .000	ELEVON = .000		
BREF = 936.7000 IN.	ZARP = .0000	IN.		RUDDER = .000			
SCALE = .0099 SCALE							
RVL (1) = 1.000	HEIGHT (1) = .850	MACH = 7.772	FO = 182.026	TO = 1230.889	HO = .040		
DEPENDENT VARIABLE H/HO							
SECTION (1) CANOPY							
Y	.0000						
TAP NO							
1.000	.1036						
2.000	.1526						
3.000	.1895						
RVL (1) = 1.000	HEIGHT (2) = 1.000	MACH = 7.772	FO = 182.026	TO = 1230.889	HO = .040		
DEPENDENT VARIABLE H/HO							
SECTION (1) CANOPY							
Y	.0000						
TAP NO							
1.000	.0919						
2.000	.1348						
3.000	.1672						
RVL (2) = 2.000	HEIGHT (1) = .850	MACH = 7.883	FO = 401.847	TO = 1312.202	HO = .061		
DEPENDENT VARIABLE H/HO							
SECTION (1) CANOPY							
Y	.0000						
TAP NO							
1.000	.1208						
2.000	.1802						
3.000	.2157						
RVL (2) = 2.000	HEIGHT (2) = 1.070	MACH = 7.883	FO = 401.847	TO = 1312.202	HO = .061		
DEPENDENT VARIABLE H/HO							
SECTION (1) CANOPY							
Y	.0000						
TAP NO							
1.000	.1075						
2.000	.1591						
3.000	.1902						

DATE 25 JUL 74

TABULATED HEAT TRANSFER DATA FOR OH13 LARC VOHT-644

PAGE 38

OH13 810C3-870TF4NSVS

(CP0001)

RVAL (3) = 3.000 HVAL/HT(1) = .850 MACH = 7.945 PO = 646.050 TO = 1404.168 HO = .077

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .1379
2.000 .1717
3.000 .2040

RVAL (3) = 3.000 HVAL/HT(2) = 1.000 MACH = 7.945 PO = 646.050 TO = 1404.168 HO = .077

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .1228
2.000 .1505
3.000 .1785

RVAL (4) = 4.000 HVAL/HT(1) = .850 MACH = 7.980 PO = 855.101 TO = 1374.570 HO = .087

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .1569
2.000 .1931
3.000 .2281

RVAL (4) = 4.000 HVAL/HT(2) = 1.000 MACH = 7.980 PO = 855.101 TO = 1374.570 HO = .087

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .1399
2.000 .1673
3.000 .1973



TABULATED HEAT TRANSFER DATA FOR CH13 LARC WHT-644

DATE 23 JUL 74

CH13 B10C9A87D7F48V5 (CP0001)
 RVAL (5) = 6.000 HAJ/HT (1) = .850 HACH = 8.040 FO = 1411.324 TO = 1421.927 HO = .108

DEPENDENT VARIABLE HAYO

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 .1575
 2.000 .2312
 3.000 .2674

RVAL (5) = 6.000 HAJ/HT (2) = 1.000 HACH = 8.040 FO = 1411.324 TO = 1421.927 HO = .108

DEPENDENT VARIABLE HAYO

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 .1373
 2.000 .1972
 3.000 .2273

TABULATED HEAT TRANSFER DATA FOR OH13 LARC VENT-644

DATE 23 JUL 74

(CPO002) (20 JUL 74)

OH13 B10C3-670TF4NSV5

REFERENCE DATA

SREF = 2690.0000 SQ.FT. WRP = .0000
 LREF = 474.8000 IN. WRP = .0000 IN.
 BREF = 936.7000 IN. ZRP = .0000 IN.
 SCALE = .0059 SCALE

PARAMETRIC DATA

MACH = 8.000 ALPHA = 30.000
 BETA = .000 ELEVON = .000
 RUDDER = .000
 MACH = 8.000 ALPHA = 30.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

RVAL (1) = 1.000 HWAHT(1) = .850 MACH = 7.778 PO = 189.790 TO = 1306.705 HO = .041

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 .0066
 2.000 .0091
 3.000 .0123

RVAL (1) = 1.000 HWAHT(2) = 1.000 MACH = 7.778 PO = 189.790 TO = 1306.705 HO = .041

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 .0059
 2.000 .0082
 3.000 .0111

RVAL (2) = 2.000 HWAHT(1) = .850 MACH = 7.883 PO = 401.225 TO = 1340.003 HO = .060

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 .0088
 2.000 .0130
 3.000 .0171

RVAL (2) = 2.000 HWAHT(2) = 1.000 MACH = 7.883 PO = 401.225 TO = 1340.003 HO = .060

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 .0079
 2.000 .0116
 3.000 .0153



TABULATED HEAT TRANSFER DATA FOR OH13 LARC VENT-644

DATE 23 JUL 74

OH13 B10C3-870TF48V5 (CP0002)

RVL (3) = 3.000 HAWHT (1) = .850 MACH = 7.946 PO = 651.961 TO = 1383.661 HO = .075

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .0111
2.000 .0169
3.000 .0207

RVL (3) = 3.000 HAWHT (2) = 1.000 MACH = 7.946 PO = 651.961 TO = 1383.661 HO = .075

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .0100
2.000 .0152
3.000 .0186

RVL (4) = 4.000 HAWHT (1) = .850 MACH = 7.980 PO = 857.278 TO = 1373.090 HO = .086

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .0131
2.000 .0199
3.000 .0246

RVL (4) = 4.000 HAWHT (2) = 1.000 MACH = 7.980 PO = 857.278 TO = 1373.090 HO = .086

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .0116
2.000 .0179
3.000 .0223

TABULATED HEAT TRANSFER DATA FOR CH13 LARC VCHT-644

(CP0002)

CH13 810C3A-9707746V6

RAVL (5) = 6.000 HAWAHT (1) = .690 WACH = 8.040 PO = 1422.212 TO = 1489.263 HO = .110

DEPENDENT VARIABLE H/HO

SECTION (1)CANDPY

Y .0000

TAP NO

1.000 .0156
2.000 .0258
3.000 .0294

RAVL (5) = 6.000 HAWAHT (2) = 1.000 WACH = 8.040 PO = 1422.212 TO = 1489.263 HO = .110

DEPENDENT VARIABLE H/HO

SECTION (1)CANDPY

Y .0000

TAP NO

1.000 .0143
2.000 .0216
3.000 .0265



OH13 810C3A67D7F4HSVJ

PARAMETRIC DATA

MACH = 8.000 ALPHA = 35.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

REFERENCE DATA

SREF = 2680.0000 SQ.FT. XREF = .0000
 LREF = 474.8000 IN. YREF = .0000 IN.
 BREF = 936.7000 IN. ZREF = .0000 IN.
 SCALE = .0059 SCALE

RVAL (1) = 1.000 HVAL/HIT (1) = .850 MACH = 7.774 PO = 189.902 TO = 1246.346 HO = .041

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 .0073
 2.000 .0087
 3.000 .0110

RVAL (1) = 1.000 HVAL/HIT (2) = 1.000 MACH = 7.774 PO = 189.902 TO = 1246.346 HO = .041

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 .0065
 2.000 .0079
 3.000 .0098

RVAL (2) = 2.000 HVAL/HIT (1) = .850 MACH = 7.885 PO = 407.136 TO = 1303.428 HO = .062

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 .0111
 2.000 .0133
 3.000 .0168

RVAL (2) = 2.000 HVAL/HIT (2) = 1.000 MACH = 7.885 PO = 407.136 TO = 1303.428 HO = .062

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 .0100
 2.000 .0119
 3.000 .0168

TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

DATE 23 JUL 74

(CFO003)

CH13 81DC3487D7F4NSVS

RVL (3) = 3.000 H/W/HT (1) = .850 MACH = 7.955 PO = 698.624 TO = 1395.183 HO = .078

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .0133
2.000 .0183
3.000 .0189

RVL (3) = 3.000 H/W/HT (2) = 1.000 MACH = 7.955 PO = 698.624 TO = 1395.183 HO = .078

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .0120
2.000 .0165
3.000 .0170

RVL (4) = 4.000 H/W/HT (1) = .850 MACH = 7.979 PO = 832.612 TO = 1360.299 HO = .087

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .0150
2.000 .0206
3.000 .0248

RVL (4) = 4.000 H/W/HT (2) = 1.000 MACH = 7.979 PO = 832.612 TO = 1360.299 HO = .087

DEPENDENT VARIABLE H/HO

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .0135
2.000 .0185
3.000 .0225



TABULATED HEAT TRANSFER DATA FOR OH13 LARC V0HT-644

DATE 23 JUL 74

OH13 BIDC3-8707F4MSVS (CF0003)

RVL (5) = 6.000 HAW/HT (1) = .850 WACH = 8.038 PO = 1396.702 TO = 1363.365 HO = .108

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .0177
2.000 .0211
3.000 .0252

RVL (5) = 6.000 HAW/HT (2) = 1.000 WACH = 8.038 PO = 1396.702 TO = 1363.365 HO = .108

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 .0159
2.000 .0189
3.000 .0226

TABULATED HEAT TRANSFER DATA FOR OH13 LARC V0HT-644

DATE 23 JUL 74

(CP0004) (20 JUL 74)

OH13 810CB8707F4NSVS WITH 900 DEG PAINT

REFERENCE DATA

REF = 2880.0000 SQ.FT. WARP = .0000 IN.
 LREF = 474.8000 IN. YARP = .0000 IN.
 BREF = 936.7000 IN. ZARP = .0000 IN.
 SCALE = .0059 SCALE

RVL (1) = 3.000 HMAHT(1) = .850 MACH = 7.950 PO = 670.937 TO = 1389.792 HO = .072

SECTION (1) CANOPY

Y .0000

TAP NO

1.000 .0151
 2.000 .0182
 3.000 .0214

RVL (1) = 3.000 HMAHT(2) = 1.000 MACH = 7.950 PO = 670.937 TO = 1389.792 HO = .072

SECTION (1) CANOPY

Y .0000

TAP NO

1.000 .0136
 2.000 .0164
 3.000 .0192

PARAMETRIC DATA

MACH = 8.000 ALPHA = 35.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

DEPENDENT VARIABLE HAO

DEPENDENT VARIABLE HAO



TABLED HEAT TRANSFER DATA FOR OHS LARC VENT-644

DATE 23 JUL 74

080801 (20 JUL 74)

OHS BUCS-6707F40VS

PARAMETRIC DATA

MACH = 8.000 ALPHA = .000
 BETA = .000 ELEVON = .000
 RUDDER = .000

REFERENCE DATA

REF = 2880.0000 SQ.FT. WPP = .0000 IN.
 LREF = 474.0000 IN. WPP = .0000 IN.
 BREF = 936.7000 IN. WPP = .0000 IN.
 SCALE = .0059 SCALE

RAVL (1) = 1.000 MACH (1) = 7.772 MACH = 7.772 PO = 182.026 TO = 1230.889 HO = .040

DEPENDENT VARIABLE GOOD

SECTION (1) BODY

Y (1) = .0000 70.0000

X/L	Y (1)
.000	.4579
.100	.5902
.125	.2877
.150	.2281
.175	.1923
.200	.1711
.250	.1690
.300	.1460
.350	.1809
.375	.1944
.400	.1297
.500	.1218
.600	.1695
.700	.1531
.800	.0865
.900	.0791
1.000	.0769
1.025	.0495

RAVL (2) = 2.000 MACH (1) = 7.865 MACH = 7.865 PO = 401.847 TO = 1312.802 HO = .081

DEPENDENT VARIABLE GOOD

SECTION (1) BODY

Y (1) = .0000 70.0000

X/L	Y (1)
.000	.8242
.100	.8941
.125	.5032
.150	.4101
.175	.3311
.200	.3185
.250	.2982
.300	.2451
.350	.3156
.375	.3395
.400	.2240
.500	.1670

CH13 BUDCH#0707F#05V5

(8P0001)

RAVL (2) = 2.000 MACH (1) = 7.863

SECTION (1) BODY DEPENDENT VARIABLE QDOT

Y (8P) .0000 70.0000

X/L	QDOT
.000	.1000
.050	.3056
.100	.2457
.150	.1253
.200	.2108
.250	.1065
.300	.1350
.350	.0454

RAVL (3) = 3.000 MACH (1) = 7.945 MACH = 7.945 PO = 646.050 TO = 1404.168 HO = .077

SECTION (1) BODY DEPENDENT VARIABLE QDOT

Y (8P) .0000 70.0000

X/L	QDOT
.000	1.2202
.050	1.0162
.100	.7522
.150	.5723
.200	.4678
.250	.4307
.300	.4001
.350	.3453
.400	.4534
.450	.4909
.500	.5491
.550	.5171
.600	.4256
.650	.3506
.700	.2859
.750	.1804
.800	.1292
.850	.1764
.900	.1250

RAVL (4) = 4.000 MACH (1) = 7.980 MACH = 7.980 PO = 855.101 TO = 1374.570 HO = .087

SECTION (1) BODY DEPENDENT VARIABLE QDOT

Y (8P) .0000 70.0000

X/L	QDOT
.000	1.3291
.050	1.1042
.100	.7942
.150	.6093
.200	.4836



TABULATED HEAT TRANSFER DATA FOR CH13 LARC V0HT-644

(8P0001)

CH13 810C348707F480V5

Reynolds (4) = 4,000 Mach (1) = 7.980

SECTION (1) BODY DEPENDENT VARIABLE QDOT

Y (8P) .0000 70.0000

X/L	QDOT
.200	.4491
.250	.4094
.300	.3502
.350	.2781
.375	.2146
.400	.1572
.500	.0791
.600	.0221
.700	.0086
.800	.004
.900	.0017
1.000	.0015
1.025	.0016

Reynolds (5) = 6,000 Mach (1) = 8.040 Mach = 8.040 Po = 1411.324 To = 1421.927 Ho = .108

SECTION (1) BODY DEPENDENT VARIABLE QDOT

Y (8P) .0000 70.0000

X/L	QDOT
.098	1.8025
.100	1.5979
.125	1.1316
.150	.8656
.175	.6919
.200	.5694
.250	.3754
.300	.2401
.350	.1600
.400	.1074
.450	.0674
.500	.0408
.600	.0195
.700	.0087
.800	.0047
.900	.0027
1.000	.0016
1.025	.0015

TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

DATE 23 JUL 74

090302 (20 JUL 74)

CH13 BIOC3-5707F-40WS

PARAMETRIC DATA

REFERENCE DATA

REF = 2880.0000 30.71. 140P = .0000 ALPHA = 30.000
 LREF = 474.0000 IN. 140P = .0000 IN.
 REF = 936.7000 IN. 240P = .0000 IN.
 SCALE = .0039 SCALE

MAVL (1) = 1.000 MACH (1) = 7.778 MACH = 7.778 PO = 189.790 TO = 1306.705 HO = .041

DEPENDENT VARIABLE GOOD

SECTION (1) BODY

Y (0) .0000 70.0000

MAVL .000 2.1740
 .100 1.9472
 .125 1.6363
 .150 1.4253
 .175 1.3276
 .200 1.4229
 .250 1.4960
 .300 1.4166
 .350 1.2982
 .375 1.0953
 .400 1.5982
 .500 1.5440
 .600 1.4361
 .700 1.3125
 .800 1.0088
 .900 .7548
 1.000 .5741
 1.025 .5134

MAVL (2) = 2.000 MACH (1) = 7.863 MACH = 7.863 PO = 401.225 TO = 1340.005 HO = .080

DEPENDENT VARIABLE GOOD

SECTION (1) BODY

Y (0) .0000 70.0000

MAVL .000 3.2301
 .100 2.9146
 .125 2.4755
 .150 2.1617
 .175 1.9990
 .200 2.1125
 .250 2.3096
 .300 2.0582
 .350 2.2196
 .375 2.4315
 .400 2.3641
 .500 2.3534
 .600 2.8010



TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

(8F0002)

CH13 810C9-8707F4MSV5

RAVL (2) = 2.000 MACH (1) = 7.883

SECTION (1) BODY DEPENDENT VARIABLE QDOT

Y (8P) .0000 70.0000

X/L	QDOT
.600	2.1030 2.3542
.700	2.0351 2.0351
.800	1.5367 1.4901
.900	1.1906 .9363
1.000	.7453

RAVL (3) = 3.000 MACH (1) = 7.946 MACH = 7.946 PO = 651.961 TO = 1383.661 HO = .075

SECTION (1) BODY DEPENDENT VARIABLE QDOT

Y (8P) .0000 70.0000

X/L	QDOT
.088	4.3622
.100	3.9028
.125	3.2474
.150	2.8123
.175	2.5795
.200	2.7081
.250	2.8193
.300	2.6082
.350	2.8171
.375	3.2210
.400	3.0280 3.6668
.500	3.0997 3.6787
.600	2.7949 2.9913
.700	2.7410 2.7410
.800	2.3918 2.2240
.900	2.1136 1.7431
1.000	1.6349

RAVL (4) = 4.000 MACH (1) = 7.980 MACH = 7.980 PO = 857.278 TO = 1373.080 HO = .086

SECTION (1) BODY DEPENDENT VARIABLE QDOT

Y (8P) .0000 70.0000

X/L	QDOT
.088	5.1751
.100	4.6453
.125	3.8698
.150	3.3682
.175	3.1081

DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR OH13 LARC VENT-644

(8F0802)

OH13 810C3A9707746SV5

RAVL (4) = 4.000 MACH (1) = 7.960

SECTION (1) BODY DEPENDENT VARIABLE GDOT

Y (P) .0000 70.0000

Y/L	
.000	3.2124
.250	3.3292
.500	2.9906
.750	3.3043
.900	3.7916
.950	4.2614
.975	4.2800
.990	3.6671
.995	3.5336
.998	3.2587
.999	2.9821
1.000	2.7754
1.001	2.7759
1.002	2.4025
1.003	2.6536

RAVL (5) = 6.000 MACH (1) = 8.040 MACH = 8.040 PO = 1422.212 TO = 1489.263 HO = .110

SECTION (1) BODY DEPENDENT VARIABLE GDOT

Y (P) .0000 70.0000

Y/L	
.000	7.8006
.100	7.0178
.125	5.7795
.150	4.9531
.175	4.5240
.200	4.6768
.250	4.8454
.300	3.6189
.350	4.2157
.375	5.4796
.400	5.0585
.500	5.6614
.600	5.8190
.700	5.9914
.800	7.6438
.900	7.7936
1.000	7.0511
1.025	7.8044



DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR OH13 LARC VDMT-644

(BFOG03) (20 JUL 74)

OH13 B10C8-8T07F4MSVS

PARAMETRIC DATA

MACH = 8.000 ALPHA = 35.000
BETA = .000 ELEVON = .000
RUDDER = .000

REFERENCE DATA

SREF = 2660.0000 SQ.FT. WREF = .0000 IN.
LREF = 474.8000 IN. WREF = .0000 IN.
BREF = 996.7000 IN. WREF = .0000 IN.
SCALE = .0059 SCALE

RVL (1) = 1.000 MACH (1) = 7.774 MACH = 7.774 PO = 183.932 TO = 1246.346 HO = .041

DEPENDENT VARIABLE QDOT

SECTION (1) BODY

Y (P) .0000 70.0000

X/L .088 1.8678
.100 1.6901
.125 1.4421
.150 1.2707
.175 1.1801
.200 1.2663
.250 1.3497
.300 1.2561
.350 1.3063
.375 1.4519
.400 1.3829
.500 1.3856
.600 1.3512
.700 1.2167
.800 .9902
.900 .8003
1.000 .5483
1.025 .5377

RVL (2) = 2.000 MACH (1) = 7.865 MACH = 7.865 PO = 407.136 TO = 1303.428 HO = .062

DEPENDENT VARIABLE QDOT

SECTION (1) BODY

Y (P) .0000 70.0000

X/L .088 3.4111
.100 3.0928
.125 2.9796
.150 2.2699
.175 2.1183
.200 2.2406
.250 2.4022
.300 2.2376
.350 2.2882
.375 2.5321
.400 2.6720
.500 2.5092
.600 2.6349

TABULATED HEAT TRANSFER DATA FOR OH13 LARC VDH-644

(8F0803)

OH13 810C3-8707F4MSV5

RAVL (2) = 2.000 MACH (1) = 7.685

SECTION (1) BODY

Y (8P) .0000 70.0000

X/L
 .600 2.4408 2.4444
 .700 2.2808
 .800 1.7744 1.7582
 .900 1.5087
 1.000 1.1/07
 1.025 1.0240

RAVL (3) = 3.000 MACH (1) = 7.955 MACH = 7.979 PO = 688.624 TO = 1395.183 HO = .078

SECTION (1) BODY

Y (8P) .0000 70.0000

X/L
 .088 4.9801
 .100 4.4426
 .125 3.6980
 .150 3.1774
 .175 2.9803
 .200 3.0576
 .250 3.3129
 .300 2.9190
 .350 3.0422
 .375 3.5659
 .400 3.5017 4.0500
 .500 3.5335 3.9916
 .600 3.4359 3.3946
 .700 3.3597
 .800 2.9292 2.8540
 .900 2.9747
 1.000 2.6704
 1.025 2.8034

RAVL (4) = 4.000 MACH (1) = 7.979 MACH = 7.979 PO = 832.612 TO = 1360.299 HO = .087

SECTION (1) BODY

Y (8P) .0000 70.0000

X/L
 .088 5.2591
 .100 4.7579
 .125 3.9735
 .150 3.4422
 .175 3.1343



DATE 23 JUL 74

TABULATED HEAT TRANSFER DATA FOR OH13 LARC VOHT-644

PAGE 55

(8F0003)

OH13 810C3-8707F4MSVS

RVL (4) = 4.000 MACH (1) = 7.979

SECTION (1) BODY

DEPENDENT VARIABLE QDOT

Y (BP) .0000 70.0000

X/L	QDOT
.200	3.2817
.250	3.5052
.300	2.8790
.350	3.0183
.375	3.8360
.400	3.7704
.500	3.8989
.600	4.0537
.700	4.3705
.800	4.6101
.900	4.9855
1.000	4.8143
1.025	4.7091

RVL (5) = 6.000 MACH (1) = 8.058 MACH = 8.058 PO = 1396.702 TO = 1363.365 HO = .108

SECTION (1) BODY

DEPENDENT VARIABLE QDOT

Y (BP) .0000 70.0000

X/L	QDOT
.088	6.7196
.100	6.0254
.125	4.9912
.150	4.2876
.175	3.9322
.200	4.0787
.250	4.2936
.300	2.9464
.350	3.1233
.375	4.8065
.400	5.1266
.500	6.3564
.600	8.3190
.700	9.6563
.800	9.9678
.900	9.8641
1.000	9.1631
1.025	8.3744

TABULATED HEAT TRANSFER DATA FOR CH13 LARC V0HT-644

DATE 23 JUL 74

(BFO004) (20 JUL 74)

CH13 B10C5.8707F4MSVS WITH 500 DEG PAINT

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = .0000
 LREF = 474.8000 IN. YREF = .0000 IN.
 BREF = 936.7000 IN. ZREF = .0000 IN.
 SCALE = .0059 SCALE

PARAMETRIC DATA

MACH = 8.000 ALPHA = 35.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

RV/L (1) = 3.000 MACH (1) = 7.950 MACH = 7.950 PO = 670.937 TO = 1389.792 HO = .072

DEPENDENT VARIABLE GOOD

SECTION (1) BODY

Y (P) .0000 70.0000

X/L
 .068 4.4009
 .100 3.9270
 .125 3.5239
 .150 3.2553
 .175 2.7443
 .200 2.9165
 .250 3.0735
 .300 2.5922
 .350 2.5716
 .375 3.1418
 .400 3.1754 3.6158
 .500 3.3043 3.6429
 .600 3.2908 3.1846
 .700 3.1364
 .800 2.7106 2.6642
 .900 2.7732
 1.000 2.8252
 1.025 2.7562



REFERENCE DATA

SEF =	2690.0000	90.FT.	90FP	=	.0000	IN.
LEF =	474.8000	IN.	15FP	=	.0000	IN.
BEF =	936.7000	IN.	24FP	=	.0000	IN.
SCALE =	.0059	SCALE				

$$\begin{aligned} \text{RVA}_1(1) &= 1.000 & \text{WACH}(1) &= 7.772 & \text{FO} &= 182.026 & \text{TO} &= 1230.889 & \text{HO} &= .040 \end{aligned}$$

SECTION 1101

2500 4000 6000 8000

x/c	200	.8166
.225	.4433	
.250	.5025	
.300	.4743	.6353
.400	.3995	.5648
.500	.3405	.5227
.600	.2598	.4082
.700	.2124	.2826
.800	.1896	
.880		
.975		.1889

SECTION 110126

2x8 .4000 .6000 .8000

200	1.8206
225	.8012
250	.8941
300	.8373
400	.7178
500	.5942
600	.4421
700	.3699
800	.3370
850	
875	.3467

PARAMETRIC DATA

MACH	=	8.000	ALPHA	=	.000
BETA	=	.000	ELEVON	=	.000
RUDDER	=	.000			

$$191 = 1312,202 \quad HO = .061$$

TABULATED HEAT TRANSFER DATA FOR OH13 LARC VOHT-644

(NFO801)

OH13 BIDC348707FAKSVS

RAVL (3) = 3.000 MACH (1) = 7.945 MACH = 7.945 PO = 646.050 TO = 1404.168 HO = .077

DEPENDENT VARIABLE GDOT

SECTION (1)MINE

2Y/B .4000 .6000 .8000

X/C	2.2009
.200	1.1647
.225	1.3037
.250	1.2177
.300	1.6930
.400	1.5095
.500	1.3765
.600	1.1181
.700	.6270
.800	.5067
.850	.4462
.875	.3959

RAVL (4) = 4.000 MACH (1) = 7.980 MACH = 7.980 PO = 855.101 TO = 1374.570 HO = .067

DEPENDENT VARIABLE GDOT

SECTION (1)MINE

2Y/B .4000 .6000 .8000

X/C	2.4124
.200	1.2800
.225	1.4284
.250	1.3196
.300	1.8428
.400	1.1255
.500	.8985
.600	.6433
.700	.5303
.800	.4603
.850	.3930
.875	.3435

RAVL (5) = 6.000 MACH (1) = 8.040 MACH = 8.040 PO = 1411.324 TO = 1421.927 HO = .108

DEPENDENT VARIABLE GDOT

SECTION (1)MINE

2Y/B .4000 .6000 .8000

X/C	3.3376
.200	1.8245
.225	2.0211
.250	1.8622
.300	2.8224
.400	1.5808
.500	1.2864
.600	.9303
.800	.6531
.875	.5435



TABULATED HEAT TRANSFER DATA FOR JH13 LARC VENT-64

(NFO801)

CH13 B10C9.870TF4-SVS

REVL (5) = 6.000 MACH (1) = 8.040

SECTION (1) MING DEPENDENT VARIABLE QDOT

2Y/B .4000 .6000 .8000

X/C

.700	.8047	1.2336	1.8037
.800	.7092		1.4091
.850			1.1245
.875		.6055	



TABULATED HEAT TRANSFER DATA FOR OH13 LARC VDH-644

DATE 23 JUL 74

WFO002 (20 JUL 74)

OH13 B10C9.8707F4HVS

PARAMETRIC DATA

MACH = 8.000 ALPHA = 30.000
BETA = .000 ELEVON = .000
RUDDER = .000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = .0000
LREF = 474.8000 IN. YREF = .0000 IN.
BREF = 936.7000 IN. ZREF = .0000 IN.
SCALE = .0059 SCALE

RVL (1) = 1.000 MACH (1) = 7.778 MACH = 7.778 PO = 189.790 TO = 1306.705 HO = .041

DEPENDENT VARIABLE GOOD

SECTION (1)/M/G

2Y/B .4000 .8000 .8000

X/C
.200 2.9119
.225 1.6772
.250 1.8981 2.8676
.300 1.8182 2.6199 2.6248
.400 1.7043 2.6697 2.4133
.500 1.5690 2.4472 2.0990
.600 1.2936 2.2075 1.8894
.700 1.2421 1.5904 1.6375
.800 1.2004 1.3274
.850 1.1080
.875 1.0303

RVL (2) = 2.000 MACH (1) = 7.883 MACH = 7.883 PO = 401.225 TO = 1340.005 HO = .060

DEPENDENT VARIABLE GOOD

SECTION (1)/M/G

2Y/B .4000 .8000 .8000

X/C
.200 4.4086
.225 2.5590
.250 2.8750 4.3154
.300 2.7375 3.9541 3.9578
.400 2.6156 3.9993 3.5767
.500 2.4274 3.6397 3.1327
.600 2.0257 3.2810 2.8455
.700 1.6853 2.4803 2.5018
.800 1.8545 2.0594
.850 1.7095
.875 1.6888



DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR OH13 LARC WHIT-644

(NFO002)

OH13 810C9-8707F40V5

RVL (3) = 3.000 MACH (1) = 7.946 MACH = 7.946 PO = 651.961 TO = 1383.661 HO = .075

DEPENDENT VARIABLE QDOT

SECTION (1)MING

21/8 .4000 .6000 .8000

X/C

.200 5.9213
.225 3.3293
.250 3.7790 5.6819
.300 3.6066 5.2802 5.4430
.400 3.4453 5.3455 5.0820
.500 3.2111 4.9704 4.4779
.600 2.7551 4.5359 4.0310
.700 2.6035 3.5055 3.4592
.800 2.6014 2.8463
.850 .890
.875 2.3185

RVL (4) = 4.000 MACH (1) = 7.980 MACH = 7.980 PO = 857.278 TO = 1373.050 HO = .066

DEPENDENT VARIABLE QDOT

SECTION (1)MING

21/8 .4000 .6000 .8000

X/C

.200 7.0868
.225 3.9466
.250 4.5758 7.4335
.300 4.4757 6.4045 6.7464
.400 4.6507 6.5465 6.4072
.500 4.9710 6.2836 5.5614
.600 4.5773 6.2233 5.1414
.700 4.7674 4.7156 4.5315
.800 4.4304 3.6668
.850 .890
.875 3.2864

RVL (5) = 6.000 MACH (1) = 8.040 MACH = 8.040 PO = 1422.212 TO = 1489.263 HO = .110

DEPENDENT VARIABLE QDOT

SECTION (1)MING

21/8 .4000 .6000 .8000

X/C

.200 11.6018
.225 6.0042
.250 7.9001 13.6835
.300 7.6649 12.6453 13.0214
.400 8.9582 14.5681 13.7933
.500 9.3077 15.5304 15.7574
.600 8.6702 14.1960 15.6058



DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

(AF0802)

CH13 81003-870774015

RAVL (5) = 6.000 HACH (1) = 6.040

SECTION (1) ING DEPENDENT VARIABLE QDOT

ZY/B .4000 .6000 .8000

X/C	QDOT	QDOT	QDOT
.700	9.2372	10.5914	13.5769
.800	9.9315	11.2270	
.850		9.5999	
.875		7.6934	

DATE 25 JUL 74

TABULATED HEAT TRANSFER DATA FOR OH13 LARC VENT-S44

PAGE 63

OH13 B10C5A8707F4NOV5

000003 (20 JUL 74)

REFERENCE DATA

REF = 2680.0000 92.FT. WRP = .0000 IN.
 LREF = 474.8000 IN. WRP = .0000 IN.
 REF = 936.7000 IN. WRP = .0000 IN.
 SCALE = .0059 SCALE

GEOMETRIC DATA

MACH = 8.000 ALPHA = 35.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

RAVL (1) = 1.000 MACH (1) = 7.774 MACH = 7.774 PO = 189.902 TO = 1246.346 HO = .041

SECTION (1) MING

DEPENDENT VARIABLE QDOT

RY/B .4000 .6000 .8000

X/C

.200	2.6901
.225	1.3628
.250	1.5727
.300	1.9096
.400	1.4611
.500	1.5538
.600	1.1127
.700	1.0558
.800	1.0625
.850	1.0774
.875	1.0076

RAVL (2) = 2.000 MACH (1) = 7.865 MACH = 7.865 PO = 407.156 TO = 1303.428 HO = .062

SECTION (1) MING

DEPENDENT VARIABLE QDOT

RY/B .4000 .6000 .8000

X/C

.200	4.6975
.225	2.3169
.250	2.6805
.300	2.5637
.400	2.9283
.500	2.3620
.600	2.0258
.700	1.9317
.800	1.9646
.850	1.9267
.875	1.6336



DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR OH13 LARC VENT-644

OH13 BLOC3-8707FANSVS (AF0803)

RAVL (3) = 3.000 MACH (1) = 7.955 MACH = 7.955 PO = 698.824 TO = 1395.183 MO = .078

DEPENDENT VARIABLE QDOT

SECTION (1)MINE

21/B .4000 .6000 .8000

X/C .200 6.6369

.225 3.3771
.250 4.0585 6.3280
.300 4.1087 6.0351 5.8159
.400 4.4399 6.1366 5.3609
.500 4.4204 5.7879 4.8054
.600 3.8213 5.5503 4.4283
.700 3.8908 4.4051 3.9430
.800 3.7508 3.2557
.850 2.7829
.875 3.1703

RAVL (4) = 4.000 MACH (1) = 7.979 MACH = 7.979 PO = 852.612 TO = 1360.299 MO = .087

DEPENDENT VARIABLE QDOT

SECTION (1)MINE

21/B .4000 .6000 .8000

X/C .200 7.9710

.225 3.7874
.250 4.5093 6.8258
.300 4.7123 6.8946 6.2476
.400 5.2589 7.1182 5.8250
.500 5.4778 6.9075 5.2912
.600 5.0176 6.7014 5.0757
.700 5.2538 5.3253 4.8666
.800 5.2534 4.1134
.850 3.9448
.875 3.8647

RAVL (5) = 6.000 MACH (1) = 8.038 MACH = 8.038 PO = 1396.702 TO = 1363.363 MO = .108

DEPENDENT VARIABLE QDOT

SECTION (1)MINE

21/B .4000 .6000 .8000

X/C .200 11.2596

.225 7.3199
.250 9.4646 10.6237
.300 9.6799 11.6579 10.2734
.400 10.6746 13.3799 10.2785
.500 11.0378 14.1794 10.4638
.600 10.8806 13.3068 10.6700

DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR OH13 LARC VO: -644

(MPO803)

OH13 B10C948 T07F4NSV5

RN/L (5) = 6.000 MACH (1) = 8.038

SECTION (1) MING DEPENDENT VARIABLE GOOD

2Y/8 .4000 .6000 .8000

X/C

.700 10.3781 10.1651 10.4998
 .800 10.3009 8.9076
 .850 8.3941
 .875 7.3836



TABULATED HEAT TRANSFER DATA FOR CH13 LARC V0HT-644

DATE 23 JUL 74

(20 JUL 74)

CH13 810C348707F4K9V5 WITH 500 DEG PAINT

PARAMETRIC DATA

MACH = 8.000 ALPHA = 35.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = .000
 LREF = 474.8000 IN. YREF = .0000 IN.
 BREF = 936.7000 IN. ZREF = .0000 IN.
 SCALE = .0059 SCALE

Q/L (1) = 3.000 MACH (1) = 7.950 MACH = 7.950 PO = 670.937 YO = 1389.792 HO = .072

DEPENDENT VARIABLE QDOT

SECTION (1) MING

21/8 .4000 .6000 .8000

X/C	6.7043
.200	3.3010
.225	3.7720
.250	3.6668
.300	3.5687
.400	3.4815
.500	3.1789
.600	3.3366
.700	3.4228
.800	3.0912
.850	2.6783
.875	2.7296

TABULATED HEAT TRANSFER DATA FOR OH13 LARC VENT-644

DATE 23 JUL 74

(CROSS) (20 JUL 74)

OH13 810C94670TF4NSVS

REFERENCE DATA

SREF = 2690.0000 SQ.FT. WARP = .0000 IN.
 LREF = 474.8000 IN. WARP = .0000 IN.
 BREF = 936.7000 IN. WARP = .0000 IN.
 SCALE = .0059 SCALE

PARAMETRIC DATA

MACH = 8.000 ALPHA = .000
 BETA = .000 ELEVON = .000
 RUDDER = .000

RVL (1) = 1.000 MACH (1) = 7.772 MACH = 7.772 PO = 182.026 TO = 1230.889 HO = .040

DEPENDENT VARIABLE QDOT

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 2.0242
 2.000 2.8597
 3.000 3.5083

RVL (2) = 2.000 MACH (1) = 7.883 MACH = 7.883 PO = 401.847 TO = 1312.202 HO = .061

DEPENDENT VARIABLE QDOT

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 3.9153
 2.000 5.4697
 3.000 6.4702

RVL (3) = 3.000 MACH (.) = 7.945 MACH = 7.945 PO = 646.050 TO = 1404.168 HO = .077

DEPENDENT VARIABLE QDOT

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 6.1008
 2.000 6.6041
 3.000 7.7296

RVL (4) = 4.000 MACH (1) = 7.980 MACH = 7.980 PO = 855.101 TO = 1374.570 HO = .087

DEPENDENT VARIABLE QDOT

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 7.2247
 2.000 7.4703
 3.000 8.7299



DATE 23 JUL 74

TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644

PAGE 68

CH13 810C9-87D7F48V5

(CPO801)

FR/L (5) = 6.000

MACH (1) = 8.040

MACH = 8.040

FO = 1411.324

TO = 1421.927

HO = .108

DEPENDENT VARIABLE QDOT

SECTION (1) CANDOY

Y .0000

TAP NO

1.000 8.2190

2.000 10.3282

3.000 11.8698

DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR OH13 LARC VENT-644

OH13 810C548707F443V5 (CP0002) (20 JUL 74)

REFERENCE DATA
 SREF = 2690.0000 SQ.FT. XREF = .0000 ALPHA = 30.000
 LREF = 474.8000 IN. YREF = .0000 IN. BETA = .0000 ELEVON = .000
 BREF = 936.7000 IN. ZREF = .0000 IN. RUDDER = .000
 SCALE = .0059 SCALE

RVL (1) = 1.000 MACH (1) = 7.778 MACH = 7.778 PO = 189.790 TO = 1306.705 HO = .041

SECTION (1) CANOPY DEPENDENT VARIABLE QDOT

Y .0000
 TAP NO
 1.000 .1556
 2.000 .2151
 3.000 .2916
 RVL (2) = 2.000 MACH (1) = 7.883 MACH = 7.883 PO = 401.225 TO = 1340.003 HO = .060

SECTION (1) CANOPY DEPENDENT VARIABLE QDOT

Y .0000
 TAP NO
 1.000 .3190
 2.000 .4653
 3.000 .6141
 RVL (3) = 3.000 MACH (1) = 7.946 MACH = 7.946 PO = 631.961 TO = 1383.661 HO = .075

SECTION (1) CANOPY DEPENDENT VARIABLE QDOT

Y .0000
 TAP NO
 1.000 .5339
 2.000 .8023
 3.000 .9798
 RVL (4) = 4.000 MACH (1) = 7.980 MACH = 7.980 PO = 857.278 TO = 1373.090 HO = .086

SECTION (1) CANOPY DEPENDENT VARIABLE QDOT

Y .0000
 TAP NO
 1.000 .7061
 2.000 1.0625
 3.000 1.3185



DATE 23 JUL 74 TABULATED HEAT TRANSFER DATA FOR CH13 LARC VENT-644 PAGE 70

CH13 B10C9-8707748V3 (CPO802)

PRVL (5) = 6.000 MACH (1) = 8.040 MACH = 8.040 PO = 1422.212 TO = 1489.263 HO = .110

DEPENDENT VARIABLE QDOT

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 1.2467
2.000 1.8507
3.000 2.2611

DATE 23 JUL 74

TABULATED HEAT TRANSFER DATA FOR OH13 LARC VEH-644

PAGE 71

OH13 B10C9-8707F4HVS

(CPO003) (20 JUL 74)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = .0000
 LREF = 474.8000 IN. YREF = .0000 IN.
 BREF = 936.7000 IN. ZREF = .0000 IN.
 SCALE = .0059 SCALE

PARAMETRIC DATA

MACH = 8.000 ALPHA = 35.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

RVL (1) = 1.000 MACH (1) = 7.774 MACH = 7.774 PO = 183.902 TO = 1246.346 HO = .041

SECTION (1) CANOPY

DEPENDENT VARIABLE: QDOT

Y .0000

TAP NO
 1.000 .1534
 2.000 .1826
 3.000 .2306

RVL (2) = 2.000 MACH (1) = 7.885 MACH = 7.885 PO = 407.136 TO = 1303.428 HO = .062

SECTION (1) CANOPY

DEPENDENT VARIABLE: QDOT

Y .0000

TAP NO
 1.000 .3879
 2.000 .4611
 3.000 .6825

RVL (3) = 3.000 MACH (1) = 7.955 MACH = 7.955 PO = 698.624 TO = 1395.183 HO = .078

SECTION (1) CANOPY

DEPENDENT VARIABLE: QDOT

Y .0000

TAP NO
 1.000 .6634
 2.000 .9037
 3.000 .9224

RVL (4) = 4.000 MACH (1) = 7.979 MACH = 7.979 PO = 892.612 TO = 1360.299 HO = .087

SECTION (1) CANOPY

DEPENDENT VARIABLE: QDOT

Y .0000

TAP NO
 1.000 .7927
 2.000 1.0780
 3.000 1.2923



TABULATED HEAT TRANSFER DATA FOR OH13 LARC VCHT-644

OH13 810C3487D7F4NSV3 (CFO003)

RVL (5) = 6.000 MACH (1) = 8.036 MACH = 8.036 PO = 1396.702 TO = 1363.365 HO = .108

DEPENDENT VARIABLE QDOT

SECTION (1) CANOPY

Y .0000

TAP NO
1.000 1.1666
2.000 1.3575
3.000 1.6091

TABULATED HEAT TRANSFER DATA FOR CH13 LARC V0HT-644

DATE 23 JUL 74

(CFO304) (20 JUL 74)

CH13 B10C3-8707F4M0V5 WITH 500 DEG PAINT

PARAMETRIC DATA

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = .0000
 LREF = 474.8000 IN. YREF = .0000 IN.
 BREF = 936.7000 IN. ZREF = .0000 IN.
 SCALE = .0099 SCALE

MACH = 8.000 ALPHA = 35.000
 BETA = .000 ELEVON = .000
 RUDDER = .000

RAVL (1) = 3.000 MACH (1) = 7.950 MACH = 7.950 PO = 670.937 TO = 1389.792 HO = .072

DEPENDENT VARIABLE GOOD

SECTION (1) CANOPY

Y .0000

TAP NO
 1.000 .6913
 2.000 .8220
 3.000 .9608

